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VOL. I. DENVER, APRIL, 1904. No. 6

LEADING ARTICLES

ARSENICAL POISONING FROM AN UNUSUAL SOURCE.

I have recently seen a case of presumable arsenical poisoning in which, after death, Dr. E. C. Hill found arsenic in quantity sufficient to account for the trouble in the suspected vehicle, a certain brand of "soda pop" water.

L., an American, 27 years of age, married, saloon keeper. He was first seen in consultation with Dr. C. F. Wolfer of Louisville, Colorado, for a chronic gastritis which incapacitated him for his work.

He was sent to St. Joseph's hospital and given an Ewald test breakfast. Dr. H. R. McGraw found much mucus in the stomach contents, with absence of free acid and hydrochloric acid. The morning vomiting of thick mucus had been so prominent a symptom that we ordered his stomach washed out daily with soda solution. He soon improved under this treatment, albuminous diet, and nitrate of silver. I attributed his gastritis to alcoholism, although the patient, his wife and his physician protested that he never drank any alcoholic liquor.

Soon a multiple neuritis of the usual toxic type developed, which strengthened me in my opinion that the patient was a drinker. At this time another man, a former schoolmate of my patient, came under my care, and he stated most positively and absolutely that L., although a saloonkeeper, never drank a drop of liquor, but always used a certain brand of soda pop when he drank with his friends, generally from 3 to 8 bottles per day.

The severity of the multiple neuritis, the diagnosis of which was verified by Dr. S. D. Hopkins, with, finally, convulsions and death, led me to suspect this drink, as I could not find any other probable source for arsenical poisoning, and the other usual toxic sources of the disease seemed out of the question.

Dr. Wolfer finally obtained for me two bottles of the soda pop in question which I submitted to Dr. E. C. Hill of Denver for analysis.

I subjoin his report:

"After oxidation and condensation, the soda water reacted positively with Marsh's, Gutzeit's and Reinsch's tests; and one bottle of the water contained 0.98 mgm. of arsenic, reckoned as arsenious oxide. The water showed a decided acid reaction, due to lactic acid. The sweet taste depended on both sucrose and maltose." E. C. HILL.

We see, therefore, that this patient had been using a quantity of arsenic approximating 1/8 gr. per day at the greatest, and 1/24 gr. per day at the least. Such amounts taken for any considerable time would certainly account not only for the neuritis, but for the chronic gastritis as well. I suspected the soda pop because of the fact that the carbonic acid gas with which it is charged is made from marble dust and crude sulphuric acid, practically always contaminated with arsenic.

Although the diagnosis in this case is not established pathologically, the clinical and chemical evidence together established almost absolutely that the case was one of arsenical poisoning from the cause given. I am under many obligations to Dr. Hill for his careful analysis and report. J. N. HALL.

BLINDNESS FROM HEMORRHAGE

Scattered through medical literature are the reports of cases of blindness, more or less complete, occurring after severe hemorrhage. In most of these cases the blindness has been permanent. But it is probable that if the exact nature and cause of the trouble were promptly recognized, and the proper treatment at once instituted, most of such cases would end in recovery.

Their history usually begins with very severe and exhausting hemorrhage, or a series of hemorrhages producing acute anemia. Hemorrhages attending labor, or from ulcer of the stomach are among the most common forms; but intestinal hemorrhage, or bleeding from a wound, or any other condition entailing great loss of blood may be the starting point of the trouble. Within a few hours or days afterward there is rapid or sudden loss of vision. The patient may awaken in the morning quite blind; or impairment of vision may be noticed and increase rapidly to complete blindness within a day or two.

In this early stage the ophthalmoscopic appearances are very striking. The retinal vessels may show a general pallor and broadening of the veins, such as attends simple anemia; with slight haziness of the optic disk. But a few weeks later the evidences of atrophy of the optic nerve, whiteness of the disk, and shrinking of the retinal vessels, become very noticeable. At this later stage intelligent and persistent treatment for the optic atrophy may bring about some improvement. But this is rarely great enough to render the eyes useful for ordinary occupations; and in a large number of cases the blindness has remained complete.

The pathology of such cases is somewhat obscure. Auto-intoxication has been suggested, and Holden has demonstrated by experiments on animals that degeneration of the ganglion cells and fibre layer of the retina may be produced by excessive abstraction of blood.

Several years ago Terson suggested that the early employment of large injections of physiologic salt solution would probably prevent the degenerative changes in the retina, which cause the permanent blindness. Recently he has reported a case of severe hemorrhage during labor, which caused syncope; and when the patient recovered consciousness she was unable to see the light of a lamp held before her eyes. An injection of 400 cubic c.m. of salt solution was given, and next day the patient's vision was quite restored. This suggestion regarding the emergency treatment of these cases has been more or less widely known among ophthalmologists. But they are not often consulted during the early course of such a case; and it seems worth while to call the attention of surgeons and general practitioners to the importance of this condition and its early treatment.

This form of blindness is almost invariably bilateral. This distinguishes it from many other kinds of sudden blindness, like hemorrhage into the vitreous, or retinal embolism, which affect but one eye. From the sudden blindness produced by methyl alcohol poisoning it would be distinguished by absence of the intense gastro-intestinal irritation, that almost always precedes the impairment of vision in the form of toxic amblyopia; and by the history of the drinking of methyl alcohol which, however, is not always attainable. In a case recently reported by Sweet, where the symptoms followed severe intestinal hemorrhage, there were symptoms which might suggest methyl alcohol poisoning. Occurring after labor, blindness from hemorrhage might easily be mistaken for uremic amaurosis. In such a case no effort should be spared to make a certain diagnosis at the earliest moment, al-

though hypodermoclysis might not be bad treatment for either form of blindness.

In general, the recent occurrence of severe hemorrhage should instantly suggest a cause for sudden bilateral impairment of vision; and the practitioner under whose care the patient falls, should recognize the need for prompt treatment.

EDWARD JACKSON.

NOTE AND COMMENT.

The American Medical Association—The meeting to be held at Atlantic City, June 7th to 10th, inclusive, will probably be the largest gathering of members of the medical profession that has ever occurred in America. The especial fitness of Atlantic City for such a meeting, and the adequacy of its hotel accommodations, will be remembered by all who attended the meeting five years ago. The fusion agreement between the New York State Medical Society and the New York State Medical Association has been fully ratified by both of these organizations; so that all members of the New York profession who take the proper steps will now be members of the American Medical Association. In addition there is announced a railroad rate of one fare for the round trip—a lower rate than has ever before been granted the association. The Colorado delegation will this year be an unusually large one. The trip east is made much pleasanter by good company. This we could be sure of having, if we knew all who were going and about what time they wished to start. COLORADO MEDICINE will be glad to act as a Bureau of Information. If those who intend making the trip will notify the editor, they will be given early information as to what arrangements can be made.

County Society Meetings vary greatly in interest and value. An interchange of ideas as to how to make them better would be of benefit to all. Short communications on this topic are invited.

ORIGINAL PAPERS

SOME POINTS IN MODERN THEORIES OF IMMUNITY.

By HENRY SEWALL, PH. D., M. D., DENVER.

No practitioner of medicine or surgery today can afford to neglect the line of thought which has been the basis of countless laboratory experiments in the past decennium, and which has already led to the production of curative serums for diphtheria, tetanus and many cases of streptococcus infection. No sooner had the germ theory of infectious disease been firmly established than thinking men began to consider the questions why different organisms manifested differing degrees of susceptibility to the same disease and why a single attack of a disease should protect against subsequent exposures. In short, what is the nature and cause of immunity to disease, and furthermore, through what means, if any, can immunity be artificially induced?

For more than a hundred years the protective power of vaccination against smallpox had stood as an isolated example of artificially induced immunity; but now, in a little more than a decade past, laboratory research has apparently advanced us very far toward an understanding of the mechanisms protective against disease.

The ideas thus gained have been marshaled into theories, some of which seem at first sight most fantastic and presumptuous, but which appear reasonable when studied in the light of the facts on which they are founded, and which, moreover, are accepted as working hypotheses by those minds best trained to solve biologic problems. A voluminous literature and an eerie vocabulary have grown up in the exposition of the doctrines of immunity; but we who are not specialists in this line of research may find an author-

itative and critical review of the whole field in the essay of J. Ritchie: "A Review of Current Theories Regarding Immunity," in the Journal of Hygiene, Nos. 2, 3, 4, 1902, which is closely followed in the present paper; in a brochure by Dr. Harold Ernst of Harvard, 1903, and in the luminous and comprehensive Huxley lecture of Dr. W. H. Welch of Johns Hopkins, published in the British Medical Journal, 1902.

The present essay is an attempt to sketch a few salient features of this difficult subject with the hope of producing the outline of a comprehensible picture of present views of the nature of immunity.

Infectious disease is, broadly speaking, due to poisoning or interference with the normal activity of the tissues by bacteria or their products. Researches on immunity have made it clear that infectious diseases may be divided into two general groups according to whether the disease phenomena are produced mainly by bacterial poisons or by bacteria themselves. In the first group, represented by diphtheria and tetanus, the bacteria are locally fixed, and the soluble poisons produced by them are taken up by the circulation and cause all the phenomena of the disease. Such diseases find their analogues in the action on the body of various products of animal and vegetable cells, as the venom from the salivary glands of snakes, ricin from the castor oil bean and abrin from jequirity seeds.

In the second group of diseases, represented by pneumonia, cholera, septicemia, erysipelas, typhoid fever, etc., the disease phenomena depend more or less intimately upon the presence of the bodies of the bacteria themselves. Injection of the toxines of the bacteria often produces but little disturbance, while inoculation with the bodies of the bacteria, dead or alive, gives rise to serious illness.

In this group the characteristic clinical effect of inoculation is fever and inflammation. As remarked by Ritchie, "From the standpoint of immunity, in the case of both classes of bacterial disease, the animal body requires to be protected both against the bacterial bodies and against soluble toxines."

In order to artificially produce immunity against a disease, the mode of procedure differs somewhat according to the group to which the disease belongs. If the disease be a member of the first group, as diphtheria or tetanus, a small amount of the toxine of the disease, so small as to produce no extraordinary symptoms, is injected into an animal. After intervals of a few days the injection is repeated again and again with continual increase in the amount of the poison. The animal finally tolerates, without symptoms, an amount of toxine, which, if it had been given at first, would have proved quickly fatal. The animal is now said to possess *active* immunity. But if the process of immunization be continued the animal begins to produce an *antitoxine* which is given up to and circulates in its blood. If the blood serum thus containing antitoxine be injected into a second animal, this animal will be protected from the disease the toxine of which gave rise to the antitoxine in the first animal. It is an important fact that toxine can can be neutralized and lose its poisonous action if mixed with a definite amount of antitoxine outside the body. The immunity conferred upon the second animal, injected with antitoxic serum, is known as *passive* immunity. It seems that in *active* immunity the living tissues are stimulated to produce an antitoxine, while in passive immunity the process consists simply in the capacity of the injected antitoxine to neutralize a certain amount of toxine within the living body. In immunizing animals against the second group of bacteria the same general pro-

cedure is carried out, but in this case the animal is inoculated with increasing amounts of the bodies of the bacteria. The bacteria first injected are usually attenuated in virulence or actually killed. The serum of the animal so treated tends to acquire bactericidal properties; that is, it will kill living cultures of the bacteria that have been injected. To this class belong the various antistreptococcic sera known to the clinician. Both of these forms of protection are known as *acquired immunity* as distinguished from *natural* immunity, which may be of different nature.

The formation of antitoxine when the toxines of the first group of bacteria are injected into an animal or the production of a bactericidal serum when bacteria of the second group are inoculated are simply examples of a very broad group of vital phenomena whose explanation would be the explanation of immunity. It may be said in general that when certain animal or vegetable products (the extent of the list is far from being known) are injected into the living body, the living tissues react in such a way as to produce and send over into the circulation an *anti*-substance whose action is antagonistic to or neutralizes or destroys such material as has been injected, when brought in contact with it. Thus the poisons, ricin or abrin, when injected into an animal may give rise to a serum containing antiricin and antiabrin which, injected into other animals, protects them from the original poisons. The milk curdling ferment, rennin, injected into animals after the manner of an immunization experiment, gives rise in its serum to an antirennin which, mixed with milk, prevents rennin from curdling it. Again, when an animal is immunized against a definite bacterium its blood serum becomes, as a rule, not only bactericidal, but bacteriolytic to that bacterium, *i. e.*, dissolves it. If the blood corpuscles of one animal, say a rabbit, are injected into the body of another, say a guinea pig, the serum of the latter becomes hemolytic for the blood of the former; that is, the serum of the guinea pig acquires the power of dissolving the red corpuscles of the rabbit. If living spermatozoa are repeatedly injected into the peritoneal cavity of an animal, as in producing immunization, the body fluids of that animal develop the power of immobilizing fresh spermatozoa. It has been found that when an emulsion of liver cells is injected into an animal in repeated and increasing doses the serum of that animal takes on properties which cause it, when injected into another animal, to produce acute fatty degeneration of the liver cells of the latter. So also specific poison for the cells of the kidney and the central nervous system have been produced as *anti* bodies in the sera of animals immunized by the injection of emulsions of kidney or central nervous tissues. The foregoing are but types of a host of facts which it is the business of a theory of immunization to explain.

If we except the phagocytic theory of Metchnikoff, which will be touched upon later, no comprehensive linking of the facts experimentally developed in the study of immunity was offered until the publication of a paper by Ehrlich in 1897. Ehrlich regards the phenomena leading up to immunization as complicated reactions of physiological chemistry. According to him the toxine molecule produced by pathogenic bacteria is composed of two groups. One has the power of combining with certain affinities of definite animal cells; it is therefore known as *Haptophore*.

The other group of the toxine molecule is the poisonous principle or *Toxophore*, and can only exert its action on a cell when fastened to it by the haptophore. The idea may be illustrated by a homely comparison: Imagine the toxine molecule to

be a bird of prey; he fastens his victim with his claws (his haptophore), and rends it with his beak (his toxophore). Ehrlich supposes that when a bacterial toxine is injected into an animal the haptophore groups become united to corresponding affinities of certain tissue cells as, e. g., the nerve cells in the case of tetanus toxine, and the toxophores poison them. But if the amount of poison injected is not overwhelming, a vital reaction occurs in the following way: The toxine molecule unites through its haptophore with a molecular group of some tissue cell for which it has an affinity. This molecular group of the living cell, called by him a *receptor*, is thus diverted from its ordinary vital function in the cell and the latter, obeying a well recognized law of vital reaction which tends to the overproduction of destroyed elements, not only regenerates the molecular group lost to the toxine molecule, but reproduces it in excess. As further doses of toxine are injected into the animal the reproduction of molecular groups, or receptors, capable of combining with the toxine becomes so excessive that they break off from the parent cell and float away in the circulation. These receptors, or side-chains as they have been called before severing contact with their sites of formation, constitute the antitoxine.

When a serum containing these antitoxic molecules is injected into an animal, and that animal is inoculated naturally or artificially with the corresponding toxine, the toxine and antitoxine unite together in the circulating blood and the toxine is prevented from combining with and poisoning the living tissues. The amount of antitoxine produced in a course of immunization may be vastly in excess of the amount of toxine used in its production. As much as 100,000 times as much antitoxine produced as toxine injected has been recorded—a striking evidence that vital reproduction of the antitoxine receptors does really occur.

A number of curious facts which Ehrlich's theory more or less satisfactorily explains, can only receive a passing notice. Thus it has been definitely proved that a toxine may lose its toxicity without at the same time losing its power of conferring immunity. Also, the degree of immunity artificially acquired by an animal may be much greater than the antitoxic power of its own serum.

We have thus far considered especially the mechanism of immunity in the first class of diseases, illustrated by diphtheria and tetanus, in which it was only necessary to explain the neutralization of the soluble poison of disease germs. The matter becomes much more complicated when we turn to the second group of diseases, immunity to which depends upon the development in the body of a power to kill the pathogenic bacteria themselves. As already stated, active immunity to this class of disease can be conferred on an animal by inoculating it with increasing quantities of cultures of the appropriate bacteria—the cultures being first dead or attenuated and later virulent; or *passive* immunity may be induced by the injection of the blood serum of an actively immunized animal.

It will be necessary to consider a few of the facts upon which Ehrlich's theory is based. In 1894 it was discovered by Pfeiffer that if a guinea pig be immunized against the vibrio of cholera by the injection into its peritoneal cavity first of dead and later of living cultures of the germ, the peritoneal fluid soon develops bactericidal and bacteriolytic properties for that germ. That is, if some of the immunized peritoneal fluid be removed with a pipette and virulent vibrios of cholera be added to it, almost immediately the highly motile bacteria come to rest, lose their comma shape, swell, break up into granules and

finally disappear. The same results follow if the blood serum of the immunized animal is used instead of its peritoneal fluid.

This reaction is essentially identical with that which occurs in immunizing an animal against the blood corpuscles of another. Thus, if the blood of a rabbit be injected repeatedly into the body of a horse, the serum of the latter becomes hemolytic to the red corpuscles of the former. That is, when the serum of the immunized horse is drawn and red corpuscles from the rabbit are added to it, the latter are dissolved. It was later noticed that when the immune horse's serum was heated for half an hour at 55 C. it was no longer capable of dissolving the rabbit's corpuscles; it had lost its hemolytic properties. If, however, to the heated serum there was added a little fresh serum from a non-immunized animal, the former heated serum regained its activity and was again capable of dissolving the rabbit's corpuscles. The same facts pertain to the action of sera when immunized against bacteria. It is evident, then, that the power of the so-called immune serum to destroy certain bacteria or blood corpuscles depends upon the presence in it of at least two complex substances. One of these is destroyed by a half hour's heating at 55° C; it exists preformed in the sera of normal animals and does not depend upon the process of immunization for its development. It has been called by Ehrlich the "Complement." The other substance, unaffected at 55° C, in the immune serum which may be engaged in the destruction of specific bacteria or blood corpuscles is probably produced as a result of the reaction of the tissues of the treated animal to the process of immunization. This substance has received the name "Immune body." According to Ehrlich, immune body possesses two combining affinities, or "haptophorous groups." One of these is satisfied by linking immune body to the bacterium or blood corpuscle and the other combines with the complement. Now the complement, besides possessing an affinity for immune body, has in it a chemical (toxophorous) group which is the immediate and active agent in the destruction of blood corpuscles or bacteria, respectively, against which the serum is immunized. In general, it may be said that every normal animal possesses in its juices the substance known as "complement," capable of destroying and dissolving all kinds of living cells. But in order that this destructive action of the complement shall be manifested it must be united to "immune body," a specific substance produced by the reaction of the living tissues to certain definite irritations such as the injection of definite bacteria, animal cells or corpuscles. Immune body thus produced seems to have power of combining only with the cells or substances that have excited the vital reaction. To illustrate by clinical usage: The antistreptococcic serum now so commonly employed owes its virtues to immune body developed in horses' serum by active immunity, conferred by repeated inoculation with cultures of streptococci. When the immune serum is injected into a patient its immune body unites with the streptococci met and also with the complement already in the blood of the patient, and the complement then destroys the streptococci. It may be said that the complement in immune serum is not only destroyed by moderate heat, but it rapidly disappears with age. Another fact of clinical importance which has been established experimentally is that the injection of an excess of immune body into an animal lowers rather than raises its susceptibility to infection by the germ against which immunity is sought. Such, in brief, are some of the fundamental ideas in what may be called the humoral theory of im-

munity, omitting most of the facts on which it is based and without presenting the difficulties to its acceptance. Even such an essay as this would be incomplete without referring to another view of immunity known as the "phagocytic theory" of Metchnikoff.

This great worker more than ten years ago discovered that bacteria introduced into the body could be englobed and dissolved by certain living cells, especially some of the white blood corpuscles, which were therefore named "Phagocytes." It was early found that the migratory phagocytes are actively attracted to or repelled from foreign substances injected into the living body, a property to which the name "Chemotaxis" is given. According to Metchnikoff immunization consists in an education, as it were, of phagocytes so that they will approach and devour rather than retreat from irritant bodies against which immunization is practiced.

Even this theory, however, cannot escape the general conceptions of immune body and complement as set forth by Ehrlich.

The diligent student of the subject which I have so briefly tried to treat cannot but be astounded at the wealth of vital facts which has been disclosed in experimental work along the lines of the theories of immunity, and he must indeed have a sluggish imagination who does not become confident in the hope of an early solution of many of the most important problems that to-day baffle our attempts to help the sick.

INJURIES AT THE ELBOW JOINT.

By Charles B. Lyman, M. D., Denver.

The subject of this short paper may seem to many of you to be of slight importance, but after having seen many injuries of this character I am led to believe that a few words based on such experience will not be out of place as these injuries are of frequent occurrence and often fall into the hands of the family physician. Deformities resulting from either improper diagnosis or faulty treatment are very noticeable and cause great inconvenience to the patient from the limitation of movement and, especially in women, considerable worry by their unsightliness.

The elbow joint is a complex one. A thorough knowledge of the anatomy of the parts and familiarity with the landmarks is essential for the proper understanding of the injuries which may exist. We have three bones entering into the formation of this joint and two separate varieties of motion; one between the humerus and the ulna in which the radius plays a passive part, following the ulna. In this motion the articular surfaces of the adjoining bones, namely, the humerus and the ulna, are not at right angles to the long axis of the bones. As a result of this we find that when the arm is in the position of extension and supination, we have an obtuse angle formed between the ulna and the humerus, which we technically call the carrying angle. In certain forms of injury this angle is obliterated. At the lower end of the humerus we have in front and back, respectively, the coronoid and olecranon fossae, into which fit the olecranon and coronoid processes in the motions of flexion and extension. That these motions may be perfect, these fossae must retain their normal depth after complete repair of the injury. To either condyle of the humerus are attached the forearm muscles; the flexors on the internal side and the extensors on the external. The fracture of one or the other of these prominences will be accompanied by displacement of the fragments. Unless the fragments are accurately adjusted we are likely to have resulting limitation in the extent of flexion and extension and obliteration of the carrying angle of the arm.

There are certain landmarks, the location and relations of which should be familiar to everyone. There are four prominent points which can be felt in every arm, no matter how great the swelling may be. These points are the tip of the olecranon process, the external and internal epicondyles and the head of the radius. The latter can always be felt in the normal arm about one-half to three-quarters of an inch below and to the inner side of the external epicondyle, and in the absence of fracture of the neck or shaft of the radius, can be felt to rotate under the examining finger, upon pronation and supination of the arm. The external and internal epicondyles should normally be on a horizontal line at right angles to the long axis of the humerus; and when the arm is in position of extension, the tip of the olecranon should lie on that line or one-fourth of an inch above it; while, with the arm in the position of flexion, this point lies below that line a fraction of an inch. This is one of the most important points to bear in mind; and as the relation of these three points differs absolutely in a dislocation and a fracture of the lower end of the humerus, and as they can always be found upon examination, no difficulty should occur in making a differential diagnosis between these two injuries. Roughly speaking, in the normal arm and in one with a fracture of the lower end of the humerus these three points lie on a straight line, while in a dislocation they form a triangle, the olecranon being the apex.

In childhood fracture in this neighborhood is of common occurrence; it is, more strictly speaking, an epiphyseal separation. At the lower end of the humerus we have four centers of ossification. These centers coalesce at variable ages, but do not become united to the shaft of the bone until the age of sixteen or seventeen, so that a large percentage of fractures of the lower end of the humerus in patients under that age are in reality epiphyseal separations, the line of separation being nearer to the articular surface than in supracondyloid fractures in the adult.

The injuries most commonly seen at the elbow are, first, dislocation of both bones of the forearm backward; second, dislocation of the head of the radius, including the subluxations of childhood; third, fracture of the radial neck; fourth, fracture of one or the other of the humeral condyles; fifth, fracture across the shaft of the humerus above the condyles, either with or without a longitudinal line of fracture between the condyles.

Diagnosis of dislocation of the radial head is easily made, as the end of the bone can be easily felt just below and to the inner side of the external condyle in the normal arm, and comparison may be made with its position on the uninjured side. If in doubt as to whether the prominence felt is the head of the bone or not, supination and pronation of the forearm will give us rotation of the head of the bone beneath the examining finger. Fracture of the neck of the radius is distinguished by the fact that the head of the bone is in its normal location and does not rotate with the shaft of the bone in pronation and supination of the forearm.

Fracture of one of the condyles is determined by the fact that the condyle is movable on the shaft of the humerus and the tip of the condyle is likely to be depressed below the level of the olecranon and the other condyle. There is limitation of motion and a change in the carrying angle of the arm.

The two injuries which are apt to be confounded with one another are fracture of the lower end of the humerus (or epiphyseal separation) and dislocation backward of both bones of the forearm. Differential diagnosis between these two injuries is easy if one bears in mind a very few things; first, that in a fracture if the

arm be placed in position of extension the tip of the olecranon will be on a line drawn from one epicondyle to the other, while in a dislocation it will be considerably above that line, forming with these two points a triangle; second, that in both a fracture and a dislocation a tumor is formed on the flexor side of the arm, but with this difference, that in case of a fracture the tumor lies above the skin crease at the fold of the elbow and is sharp in outline and the same breadth as the shaft of the humerus, while in a dislocation the tumor lies below that crease and is smooth in outline and broader than the shaft of the bone. Measurements of the upper arm taken from the acromial tip to the external epicondyle will show shortening of the upper arm in fracture, while in a dislocation the two arms will measure the same.

These signs alone will be sufficient to make a correct diagnosis from. If a fracture is present an X-Ray examination should be made if an apparatus is at hand, for the purpose of determining the exact direction of the fracture line and the degree of displacement. However, here is a place where accurate diagnosis is demanded, as it is essential that the fragments should be brought actually together. The line of fracture is usually upward and backward and the lower fragment is usually pulled upward and backward by the extensor muscles. There is a tendency also, as will be seen in the two skiagrams which I herewith present, for the two fragments to separate in such a way as to leave a gap on the flexor surface.

The use of the X-Ray will do away with considerable manipulation of the injured parts, for ten times as much damage is done by rude and careless manipulation as by the original injury. There has always been a general rule in the treatment of elbow injuries, that they should all be treated with the arm in an angular position with the exception of a fracture of the olecranon, which all agreed should be treated with the forearm in the position of extension. This has always been my rule and is to-day, although I find that there are some surgeons who advise the use of the extended position in fracture of the lower end of the humerus as well. I believe, however, that it will be almost impossible to thoroughly overcome the tendency of the fragments to separate at an angle, by placing the arm in an extended position.

I usually employ plaster of Paris splints, made of eight or ten thicknesses of gauze, saturated thoroughly in liquid plaster of Paris; one to extend from the axilla to the fingers on the flexor side of the arm, the other to extend from the neck to the fingers on the extensor side. These are all applied next to the skin and are secured to the arm by an ordinary roller gauze bandage. The arm can thus be flexed to any angle desired and such manipulation carried out as may be needed to restore the fragments to their normal position. The arm is held in that position until the splints become hard, when they will effectually hold the fragments in place. In some cases it will be necessary to place the arm in a position of flexion beyond a right angle, to overcome the tendency to an angular separation of the fragments; or it may be necessary to place two firm pads between the splints and the arm, one in front over the lower end of the upper fragments and the other behind over the lower fragment, to assist in maintaining apposition.

If the fracture be in the epiphyseal line, it is best to keep the retention apparatus on for a period of six weeks. If the line of fracture be through the shaft of the bone higher up, four and a half to five weeks will suffice.

Formerly I advised the use of passive motion of the joint early; now I do not,

as I believe the removal of the arm from the splints and the use of extension will have a tendency to increase the angular displacement and cause a prominence on the anterior aspect of the humerus, which might interfere with proper flexion of the arm afterwards.

The two skiagrams which I herewith present show very clearly the tendency of the angular displacement which I have just mentioned. No. 1 was taken after

No. 1—Treatment Nearly Complete.

No. 2—Imperfect Approximation.

treatment was nearly complete. No. 2 was taken shortly after the fragments were adjusted, and I thought from examination made before the skiagram was taken that I had secured fair approximation of the fragments. The skiagram shows clearly that I was mistaken, and so the fragments were again adjusted properly and pads placed between the splints and the arm to assist in maintaining apposition. This skiagram was taken with the splints in position. Skiagram No. 3 shows another condition of which I have already made mention, namely, that of a fracture of the condyle of the humerus. It is that of a boy who six months before I saw him had sustained a fracture of the external condyle which had gone untreated. When I first saw him the fragment was displaced downward and inward to such an extent as to interfere with the motion of flexion, there being not over fifteen degrees of flexion. Treatment, consisting of separation of the condyle, refreshing the surface of the humerus and immobilization of the condyle by means of a steel nail, secured the result as shown in the skiagram and allowed normal flexion. For the excellent work done in taking these skiagrams I am indebted to Dr. B. C. Leavitt.

The only other injury to the elbow which I wish to speak of is dislocation of both bones of the forearm backward. The obstacle to reduction in these cases is locking of the coronoid process in the olecranon fossa. This is easily overcome by first bringing the forearm into the position of hyper-extension. Extension and counter-extension, with the arm in the position of hyper-extension, will then

overcome the displacement easily. Occasionally in these cases the coronoid process is fractured, when reduction of the deformity is easy and return of the deformity after reduction is not at all uncommon. To guard against the return of the dislocation in such case, the arm should be put up in plaster splints, both anterior and posterior, with the forearm flexed on the upper arm beyond the position of a right angle.

Discussion.

Dr. Leonard Freeman: We all know that, owing to faulty treatment and sometimes in spite of the best treatment, fractures of the elbow joint, which involve the external or the internal condyle sometimes come out with what is known as a gunstock deformity. When the arm is flexed it looks perfectly normal; but as soon as it is straightened, owing to one condyle or the other being up too far, the fore-arm is thrown either out or in. This interferes with the carrying capacity of the arm and is a serious thing to any one who has to make a living by the use of the arm. It is possible, sometimes, to correct this deformity by chiselling off the condyle which has gotten in the faulty position and replacing it. But I think the better procedure is to do an osteotomy directly above the joint. In this operation the joint is not opened at all, hence there is no danger of interfering with motion of the arm even should suppuration occur. Suppuration should not occur, of course. It is an operation which is practically devoid of danger. A small incision is made upon the external or internal side of the arm; a chisel is passed down through the various tissues, after bluntly separating them, and the bone is divided by a few strokes. Then the arm is straightened and put in plaster. When the bone is united it will be found that the arm is as near perfect as can be. I have done this in one or two cases with very satisfactory results.

I think in fractures of the elbow joint where we are not thoroughly satisfied that we are getting things in proper position, it is wise often to operate shortly after the injury. In two or three instances where there was a fracture at the lower end of the humerus, such as Dr. Lyman has so well described in his paper, I have found it expedient to cut down upon the fragments and wire them in position; and I have achieved such excellent results by so doing that I feel I should be tempted to do it again under similar circumstances.

Dr. W. W. Grant: A few years ago I read a paper and exhibited skiagraphs of similar fractures in which the same deformity was shown. In fact I have never seen a skiagraph of these fractures in which it was not shown that accurate co-aptation was never achieved by any method of treatment ordinarily used. I said in that paper that I believed more accurate co-aptation could only be had by wiring or nailing as first advised by Lane and Roberts, and now by a good many surgeons. It is just as safe to do that as it is to perform the osteotomy which Dr. Freeman recommends to correct the deformity. In reference to gunstock deformity I stated that it was more a matter of appearance than of loss of function; that, as a matter of fact, gunstock deformity did not seriously affect the carrying function of the arm. In reference to that statement I personally asked Dr. Stimson, of New York, what his experience had been or what his professional opinion was. He is a great authority on this subject. He said: "I think your statement correct. In my own practice I would not perform a serious operation to correct an ordinary gunstock deformity." In flexion, it will be observed, you do not see any deformity or disfigurement, but in extension it is manifest. It does not usually impair the function of the arm, notwithstanding the prevalent opinion that it does.

Dr. Cooper: I would like to call attention to one point as an anatomist, not as a surgeon, which is apt to be overlooked. As a matter of fact the arm is not straightened in a condition of supination, in the natural position; but on the contrary there is an angle of 19 degrees due to the naturally lower position of the inner condyle. While this is of course borne in mind by the surgeons, the general practitioner is liable to overlook it. The arm is not straight by any means, there is a considerable angle; that is, the forearm is not in direct line with the arm proper.

Discussion closed by Dr. Lyman: I have nothing further to say except in regard to the matter which the last doctor has mentioned, the normal angle which is formed by the axis of the humerus with the axis of the forearm, which I mentioned in my paper as the natural carrying angle of the arm. We may have obliteration of that angle or an increase in that angle according to which condyle is

fractured. My experience in regard to these injuries is this: So far as usefulness of the arm is concerned afterwards, I have seen a number of cases in which there has been more or less increase in the angle formed between the humerus and the forearm, and I never yet have seen a case in which it has interfered with the function of the arm. The main trouble was the disfigurement, and that was a secondary consideration so long as we had a good, useful arm.

A CASE OF MULTIPLE DEPRESSED FRACTURE OF THE SKULL—RECOVERY.

By S. D. Van Meter, M. D., Denver.

It is with considerable reticence that I offer a paper to this society, the basis of which is the report of a single case, but, as is manifest in the title, its extreme rarity is sufficient to warrant its report. Especially is this conclusion justified when the unquestionable evidence of basal fracture, and the interesting mental and speech phenomena are considered.

The history of the case, briefly stated, is as follows:

Ed. S., aged 40, married, hale and hearty, of temperate habits and good family and personal history; occupation, that of foreman of a reduction mill. On July 1, 1903, while repairing a shafting boxing, was struck upon the left side of the head, about the center of the squamous portion of the temporal bone by the end of an iron "buck-stay" 11 feet in length, which fell from an upright position, the dead weight of which was estimated at 150 pounds. The end that inflicted the wound in falling described almost a quadrant of a circle, the radius of which was the length of the buck-stay. It struck with sufficient force to drive the injured man's head against the shafting and an upright bolt forcibly enough to cause two depressed fractures at the points of contact. The patient was removed to the hospital in less than an hour after the accident occurred. On admission he was in such a bad condition it was considered almost useless to make any operative attempt to relieve the depressions. It was evident that he had a fracture of the base, as shown by the bleeding from the left ear. Resp. 28, pulse 88. However, in about an hour he seemed to rally somewhat from the shock. In a condition of marked cerebral compression (pulse 72, respiration 12 and stertorous), he was placed upon the operating table and the *three* depressions rapidly (45 minutes for the three) relieved.

The one on the left side of the skull was stellate in character and involved the greater part of the squamous portion of the temporal bone. The dura was lacerated and a meningeal artery was bleeding profusely. There was a slight wound of the portion of brain exposed by the laceration of the dura. After removing the depressed fragments at this point the patient's pulse and respiration instantly improved. Up to this time but a few drops of chloroform had been used. The bleeding artery was ligated and the jagged edges of the opening in the skull were rounded off with a rongeur, a light gauze drain inserted and the scalp would closed with interrupted sutures. The lower margin of the window was below the zygoma and the upper reached to the squamous suture and as far forward as the sphenoid. The posterior margin was on a line with the auditory meatus. The next attention was given to the wound over the right temple. It was found to be circular in shape, about one inch in diamater. With the aid of a rongeur and elevator the depressed button was removed without trephining or laceration of the dura. This wound was caused by the ¾ bolt, which acted like a perforating punch. The remaining fracture was located a litle above the center of the right parietal bone and was linear in form. A ¾-inch trephine was used

and the depressed bone removed without wounding the dura. As was done in the first a light gauze drain and interrupted scalp sutures were used in the two latter wounds. The patient was in a better condition (pulse 100, resp. 30), on completion of the operative work than at its beginning.

There was but little elevation of temperature during the next few days—no more than would be consistent with the great loss of blood and reaction therefrom. But little food and drink could be gotten into the stomach, therefore rectal alimentation was relied upon for the first ten days.

Prior to operation the condition of the patient permitted of no examination as to paralysis, either motor or sensory. At no time since the accident has there been a motor or sensory localizing symptom, further than during the first few days after he began to move his limbs, it was noticed that the right arm would tire out first. This soon became unnoticeable. For the first five days he lay in a stupor, but there were no signs of compression. During this time the eyes were at times drawn to the right; pupils equal, however, and responded to light. The stupor gradually wore off, and at the end of the second week the nurse was able to get him to take some water and liquid food by the mouth. In another week he was able to take sufficient food by the mouth to sustain him, and during the fifth week he began to eat solid food with relish and recognition. Up to this time he passed urine and feces unconsciously, but showed evidences of disgust and anger after such occurrences. During the sixth week he began to use the vessel for urination and defecation. By this time he had regained sufficient strength to walk across the room, with the assistance of his attendant. The three wounds all healed kindly, with no suppuration.

To-day, three months after the accident, he is in fair physical condition, with no paralysis whatever, eating and sleeping naturally and no pain. His mental condition, however, while greatly improved, is bad. This phase of the case Dr. Pershing will relate.

THE DEFECTS AS TO SPEECH AND MIND.

By Howell T. Pershing, M. D.

The injury on the left side, which fractured the squamous portion of the temporal bone, penetrated the dura and lacerated the brain, must have damaged the temporal lobe, probably in its first convolution. This is the auditory center and the symptoms are typical of auditory aphasia.

The patient has word-deafness; he hears words but does not understand them, because the lesion prevents free communication between the auditory center and the other centers of the brain. The word "red," for instance, has a meaning because its sound rouses the auditory center to send association currents back to the visual center, where they awaken the memory of the color. In our patient the damaged auditory center does not send the association currents.

The patient's speech is a jargon, made up of some words correctly uttered, of others mutilated or mispronounced and of still other sounds that are entirely unintelligible although evidently intended for words. He apparently is not aware that his talk is difficult to understand; he is word-deaf for his own speech as well as for that of others. This jargon-paraphasia is readily explained by loss of that memory of the correct sounds of words which normally guides the utterance center.

Both reading and writing are defective in the same way as speech, because in either of these processes one must, as it

were, talk to himself, and if speech is confused, reading or writing will be so too.

This man's mental defect seems worse than it really is, because he cannot make himself understood. Nevertheless, there is a serious defect in his thinking on account of a lack of words with which to carry it on. A certain amount of mental work can be done by means of visual and other sensory images, but for all the higher forms of thinking words, as symbols of abstract ideas, are indispensable. A skillful game of cards or chess might be played without words, but no business could be carried on or supervised without their use.

This man has improved very greatly and we may look for much further improvement, but complete recovery of speech and mental faculties can hardly be expected.

CONSERVATIVE SURGERY.

By George C. Stemen, M. D., Denver.

"Truth Is a Divine Attribute and the Foundation of Every Virtue."

From the commencement of the history of man and medicine the profession has been busy in observing and collecting evidence from which the truth, as to the best results, might be procured. That there is to-day such a difference of opinion among the profession in certain medical and surgical diseases is largely due, in my opinion, to imperfect and incomplete observations as to which of certain lines of treatment or procedure gives the best results and lowers the mortality most. From time immemorial the medical profession has been ruled and to a very great extent controlled by individual theories, without a sufficient proof or guarantee being furnished. And these important theories have been accepted as scientific truths without proper observation or demonstration. In nearly all ages, theories have been advanced and ideas dictated by individuals; and what these men have said has been accepted as scientific truth and adopted as a rule of practice. The result has been that a wide space has and does at the present time exist between such methods and ultimate truth. But with time and the advance of our profession, men, as well as their theories, have taken a lower standing, until to-day we are a doubting profession. This contagion has spread the germs broad cast and the symptoms have been taken up by the laity, and the results have been and, I am sorry to say, are to-day a source of great annoyance to all medical and surgical men, who have only the lessening of human suffering and the prolonging of human life, at heart. Therefore, truth and character are the principal elements of scientific medicine and regulate its practice. And too much censure cannot be urged against those individuals who detract from the high standing of our profession to further their own individual ends, thereby prostituting scientific medicine. I do not believe that the man who lives for a livelihood can make a success of life. I would not eliminate from human nature the laudable desire for wealth and reputation. These are the spurs which, attached to the heels of human action, enable us to drive jaded care and wearied purpose into renewed endeavor and into final victory. But they are neither the horse which is ridden nor the man who rides, but the incentives of doing duty. In the words of the late Dr. Loomis: "We should yield precedence to truthfulness and honesty of purpose or faithfulness of service in the bitter conflict humanity ever has waged and even must wage against pain and disease. Therefore, is it not the duty of the physician and surgeon to lay aside individual theories and opinions not proven to be facts by observation and to follow that line of treatment or that procedure in surgery

that will offer to his patient lessened suffering and a greater chance of recovery, until by proper demonstration and observation his opinions and theories prove to be better. The dictionary says: "To conserve is to save;" therefore, conservative surgery is that kind of surgery which saves. I do not mean, nor is it meant by the definition, that to be conservative a surgeon should save all that is possible, for in many cases of accidental surgery many portions of the body injured might be and frequently are saved, but would that be conservatism? Porter says: "Conservatism must be proven to be a method by which, first, life; second, comfort; third, form; fourth, usefulness, can be saved at least as well as by any other method, and any treatment which does not fulfill these requirements when compared with another method, must yield its banner of conservatism. The most radical treatment in many diseases and conditions may also be the most conservative. That is not true conservatism that saves a patient pain at the price of his life. That is not true conservatism which saves a leg less useful than an artificial one at a risk equal to or greater than would attend amputation." The radical operation for malignant growths (especially of the mamary gland and uterus) constitutes in my opinion the most conservative treatment of them. By the radical operation I mean the thorough cleansing of the axillary space of all fat and glands (by way of parenthesis I desire to say that this procedure should be followed in all cases of tumors, especially of the mamary, if at all suspicious—and all tumors of the breast are suspicious). Only a few years ago this operation was looked upon as little short of criminal and was classed among the unjustifiable surgical operations, even among able physicians and surgeons, and only six or seven years ago, Dr. Kelly, while attending the meeting of the southwestern surgeons, who were expressing in vigorous terms their absolute disbelief in operations for cancer of the breast and uterus, made a strong plea that surgical interference was the only justifiable and conservative treatment of that affliction, and that a surgeon who would refuse to perform such an operation was cowardly. If only the relief from local pain and the prolonging of life one, two or three years results from the surgical procedure, with many chances of prolonging life 10, 15 or 20 years, then I ask you in all candor and soberness, is not the radical operation the only true conservative treatment? The lowered death rate of the last four or five years should be a sufficient guarantee to warrant all medical men to at least recommend the operation, if for no other reason. How eagerly the medical world is to-day watching and waiting and observing with intense interest the result of the removal of the sympathetic ganglia for the relief of the severe nervous conditions which heretofore have resisted to a very large extent medical treatment; and while some medical men laugh at the idea that cures can follow its removal, yet if the demonstrations prove what we hope they may and complete recoveries follow in even a limited number of cases, then would it not be the most conservative treatment?

In cases of fracture of the spine, with pressure on the spinal cord, when extensive enough to cause paralysis of the sphincter and complete loss of motion and sensation below the seat of fracture, while many members of the profession claim that surgical interference is not justifiable, yet I believe that the consensus of opinion of the ablest surgeons, based upon a careful study of these cases, is that the relief of the pressure by surgical interference is the only conservative and justifiable method that can be employed, while the only hope of relief is to obtain control of

the sphincters, and lessen the great annoyance of the intense bed sores which are invariably present in all these cases; therefore, the earlier the operation the more conservative and justifiable it seems. There are some conditions of the kidneys that have baffled the medical profession for years and which have resisted medical treatment to a large extent, and by many considered incurable. If, however, Edebohls' operation proves that a greater number of lives can be saved than by medical treatment, then is it not the most conservative treatment that can be employed? Nephrectomy may be more conservative than nephrotomy, amputation more conservative than resection. The radical operation for hernia constitutes the most conservative treatment of hernia. The early operation for gall stones is the most conservative treatment of that trouble. Therefore, applying the principles above mentioned, let us consider what constitutes the most conservative treatment of appendicitis. Senn says that of each hundred individuals attacked with appendicitis 20 will die if all are treated medically. Porter says: "Timely operation will save more than 98 out of every hundred cases. Timely operation will save 18 more lives at least out of every hundred than will medical treatment; as between timely operation and medical treatment there can be no question but that the former is the truly conservative treatment." No one, I believe, has yet been able to demonstrate to the profession or differentiate between those cases which will be medical and those which will be surgical. The observation of the leading surgeons is against the possibility of thus distinguishing. So far as my own observations are concerned the great majority of men who claim they can thus differentiate between cases that will get well without the aid of surgery and those which will not, are men who have examined comparatively few diseased appendices or none at all. It has been said that 80 per cent of all cases will get well if treated medically. This is true, but it is not the entire truth, for of the 80 per cent that recover by this treatment one-third will have a recurrence accompanied with the same mortality as obtains in the primary attacks. The same patient has figured in the case reports of different men as cured by medical treatment; in other words, the same case has furnished two or more medical cures. Every surgeon of experience has operated upon cases previously reported as cured by medical treatment and in case they die after operation, are recorded as deaths after operation, but still continue to figure as cures from medical treatment. Every case of appendicitis that dies after operation is recorded as a death from appendicitis, while very many cases that die without operation are reported as deaths from bowel obstruction, peritonitis, typhoid fever, etc. "But for the sake of argument, we will admit for the moment that it is possible to distinguish cases requiring operation from those which do not require it." Porter. This will leave us 20 cases out of every hundred that must be operated upon; and in what condition will the surgeon find those cases? There will be gangrene of the appendix, perforation abscess, etc., with a mortality of 12 to 15 per cent, making a mortality in each hundred cases of about 7 per cent. If then we take into consideration the great danger from bowel obstruction following these abscess cases and the sometimes necessary further surgical interference, as in making another opening into the abdomen to drain a secondary abscess, and the danger of hernia, increased by having two weak places in the abdomen instead of one; and then have the assurance of such men as Senn, Murphy, Wight, Parks and many others who have drawn their conclusions from the

examinations of thousands of cases during life, and at post-mortem, that 98 per cent of all cases can be saved by timely operation as against 80 per cent with medical treatment, and a fraction over 90 with both, when not operated upon opportunely; then I ask you, ladies and gentlemen, which is the truly conservative treatment of appendicitis? I might go on and enumerate many other conditions and diseases in which the most radical treatment might be the most conservative; but I have used illustrations enough to demonstrate the one object meant to be conveyed by this paper, that is, that no matter how radical a procedure proposed may be or how much at variance it may seem from your opinion, if it is based upon fact proven by careful demonstration and observation and by trustworthy authority to lessen human suffering and decrease the death rate, then you should advise it, no matter if it passes from your hands into those of another.

And now in conclusion, ladies and gentlemen, if you cannot prevent, do your best to stop the progress of diseases as soon as possible. Give the system a chance for restitution before its power of inherent resistance is permanently crippled. The teachers of medicine and surgery and the men who have kept abreast of the advance in our science may consider this necessary; but there are men and women in our ranks with ability in certain avenues of practice who will watch and wait on nature until the poor patient is completely saturated with various poisons, so that the biological mechanism is locked and the grand art of surgery not used; or if used at all, used too late.

REVIEW OF ONE HUNDRED CONSECUTIVE OPERATIONS FOR APPENDICITIS.

By Leonard Freeman, M. D., Denver.

In preparing this paper I have gone back over my records, taking each consecutive case up to one hundred. They have all been operated on since the introduction of the Ochsner principle of treatment, to which I have adhered in almost all instances where it was indicated. This has had some bearing, I am convinced, upon the results.

Ochsner's ideas may be stated in brief as follows: All, except the mildest cases, should be operated upon within the first thirty-six hours, the exact limit of time varying somewhat with the nature of the case. If this cannot be done it is safer, with few exceptions, to abstain from surgical intervention during the so-called "intermediate period"—from the second to about the sixth day. It is then that most operative deaths occur. Meanwhile the patient should receive no food or medicine by the mouth—nothing but a moderate supply of water—in order to limit peristalsis and favor the formation of protecting adhesions. The stomach should be cleansed by washing if it contains food, or if vomiting exists, the pharynx being cocainized for the purpose in order to prevent wretching. Rectal alimentation can be employed every few hours when desirable. Morphine is not contra-indicated.

If an abscess result, it can usually be opened with safety after the sixth or seventh day, sometimes earlier. If it can be done without too much risk, it is of course better to remove the appendix; although it is often perferable to remain content with simple drainage, doing an appendectomy and repairing the weak spot caused by drainage at some future time.

Providing the attack subsides, the appendix should be removed in the interval, after the lapse, if possible, of two or better three weeks. My limited experience leads me to endorse in every way the method of Dr. Ochsner.

Among the 100 tabulated cases there were 57 males and 37 females, the sex being unrecorded in 6. As regards age,

seven were in the first decade of life, 20 in the second, 24 in the third, 25 in the fourth, 18 in the fifth, five in the sixth and one in the seventh.

There were eight deaths. Three of these, however, should not be included in the statistics, as their presence would be misleading, two of the cases being moribund at the time of operation, and the third dying of pneumonia contracted on the 19th day following the surgical intervention, after the wound had long been healed and the patient sitting up in bed. Thus the general mortality can fairly be estimated at a little over 5 per cent.

The mortality varies much, in general according to the stage of the disease. The least dangerous time to operate is between the attacks, although the first few hours of an attack are almost, if not quite, as safe as the interval. The advantages of an early operation seem to cease, however, in the neighborhood of 36 to 40 hours; and operations between the second and sixth or seventh days are accompanied by more danger than at any other time. Abscesses can be opened after the sixth day with comparative safety, providing the protective adhesions are not interfered with in an injudicious search for the appendix. When diffuse peritonitis exists operations are generally of questionable value, the mortality being extremely high.

In view of the above facts it is necessary, in order to obtain an intelligent idea of the mortality, to divide operations in appendicitis into (1) interval operations, (2) early operations, (3) the intermediate operations, (4) operations on well-defined abscesses, (5) operations on cases of diffuse peritonitis.

Interval Operations — There were 46 of these, with one death. This was due to acute lobar pneumonia which did not make its appearance until the 19th day, and seemed to be so remotely connected with the surgical procedure that it can have but little if any statistical significance In 41 instances primary union was obtained, two cases were drained and there were three wound-suppurations.

Early Operations (during the first 36 to 40 hours) of these there were 20 with no deaths. Primary union sixteen, one drained and three wound-suppurations which were caused by washing infective material through the incision. One of these operations was done during the second five hours, four during the third, five during the fourth, one during the fifth, four during the sixth and five during the eighth five hours.

Intermediate Operations (from the second to the fifth or sixth day). Of these there were but two, one on the third and one on the fourth day. Both of these resulted fatally; one of septic nephritis, with suppression of urine, and one of diffuse peritonitis. They were both urgent cases.

Abscesses — Twenty-nine, with three deaths. One of these was due to acute lobar pneumonia from which the patient was moribund at the time of operating, the operation consisting in a mere rectal puncture without anaesthesia. This leaves two operative deaths, one from acute nephritis, with uraemia and suppression of urine, and the other from profuse gastric hemorrhage.

In a number of instances abscesses were opened and drained through the bowel by means of a rubber tube projecting through the anus. In suitable cases this is an efficient method and I am sure less dangerous than an abdominal incision when the abscess is deeply situated and non-adherent above.

Diffuse Peritonitis — Two, with two deaths. One of the patients was practically moribund (pulse 160, respiration 60 and capillary circulation poor), and should not have been operated upon. The other

was in bad condition, but apparently not hopeless, although the chance would probably have been better without operation at that time.

In five early operations the peritoneal cavity was irrigated with several gallons of normal salt solution and closed without drainage. All recovered. This was resorted to in four of the cases because of rupture of the appendix with pus in the free peritoneal cavity, while in the fifth case there was pus without apparent rupture. Under these circumstances and before the peritoneum is badly injured, I do not believe that drainage is indicated. A drain simply adds a foreign body to the already sufficiently embarrassing situation, as so strongly pointed out by Sonnenburg of Berlin and H. D. Niles of Salt Lake City. When the abdomen is washed out and closed, however, provision should be made for sufficient drainage of the external wound, as suppuration is tolerably sure to intervene.

In four cases where a movable kidney co-existed with a diseased appendix, an attempt was made to remove the appendix and anchor the kidney through a single lumbar incision, according to Edebohls. This succeeded in three instances and failed in one.

I was much impressed with the fact that in at least two-thirds of the cases inflammation of the appendix was apparently caused by the organ being more or less bent on itself in such a way as to give rise to imperfect drainage. This was usually due to too short a mesentery at some point. I regard this feature in the etiology of appendicitis as of more importance than is usually recognized.

Fecal concretions were found in but five or six cases, and other foreign bodies in but two or three.

In a number of instances I was surprised by the marked symptoms, sometimes almost resulting in invalidism, produced by seemingly trivial lesions of the appendix. This was particularly noticeable in "obliterative appendicitis," where a portion of the organ was reduced to a fibrous cord with a needle-like calibre.

An interesting case was one in which a large, apparently malignant tumor near Poupart's ligament proved to be a granuloma containing a fecal concretion. The only attack of appendicitis had occurred five years previously.

The method of operating which I have finally adopted in interval cases is as follows: McBurney incision (separation of muscles), ligation of appendix, cauterization of stump with carbolic acid and burying in cecum by means of a purse-string suture, union of incision in layers, subcutaneous suture, collodion dressing. I formerly inverted the stump into the lumen of the bowel, but discarded this method some time ago as unnecessary, sometimes difficult, and occasionally leading to hemorrhage. When a larger opening is required, the internal oblique can be divided in a direction perpendicular to its fibers.

In the drainage of abscess cavities I have always employed soft rubber tubing exclusively or in addition to gauze.

Following an interval operation, with the McBurney incision, it is my custom to let patients get up on the tenth or eleventh day.

I have almost invariably used rubber gloves; in the pus cases to protect myself, and in the clean cases to protect the patient. I think they do a certain amount of good provided the operator is accustomed to their use and is mindful of needle-punctures.

Discussion.

Dr. Hall: The paper of Dr. Stemen on "Conservative Surgery," and that of Dr. Freeman on "Appendicitis," will do as much toward saving life as any two papers that could possibly be read before this association. I think the paper of Dr. Freeman, speaking of the

Ochsner treatment, ought to attract our special attention. I do not think any one would believe, who never saw it tried, that those cases which we used to have come to us of appendicitis, with threatening peritoneal symptoms, could subside in so marvelous a way as we have, in the last two or three years, seen them subside under the complete absence of food. I do not wish to make any extended remarks, but simply to call the attention of any one who has not seen that method tried, to test its value and to urge him to try it no matter how desperate the case may look. If one needed any where, after the patient is well started along further proof he might have it in those cases this road, the injudicious early feeding of that patient brings on all the old symptoms, with death as a result. After seeing that once or twice and using the other method carefully in the other cases one certainly cannot fail to see the immense advantage which we have gained in following the Ochsner treatment.

Dr. Pershing: One of our ex-presidents, who is just recovering from an attack of appendicitis with perforation, is a man who is universally beloved by the profession, and I think it not inappropriate, sir, for me to make the motion in connection with this subject that the State Medical Association send its congratulations to Dr. Arnold Stedman, and its best wishes for a long life of usefulness.

Dr. Rogers: I am very glad to second such a motion, sir. I think it very appropriate that the State Society should adopt such a motion, and it will be to their own honor in every way.

The motion was carried unanimously.

Dr. Powers: I do not like to see these valuable papers go by without a single word. I am heartily in accord with everything that Dr. Freeman has said. I am certain of one thing in regard to appendicitis, certainly at this hour,—I have been changing this from year to year, but at this time this seems to me to be right—that every patient who has had one attack of appendicitis in which the diagnosis has been clear, should have the so-called interval operation, provided that there be no contra-indications. It is the most satisfactory operation which we do. Under acceptable circumstances and in patients well selected it should be absolutely safe. And I, for one, feel that if I had a single attack, in which the diagnosis was clear, on recovery from that attack I would have my appendix taken out.

Dr. Perkins: I have been much interested in Dr. Freeman's excellent paper and with a part of it I agree heartily, the part which refers to early operations, I believe in early operations in all cases. The Ochsner method, so-called, has probably not been tried sufficiently by me for my opinion to be of much value. I have, however, lost several cases in my attempts to try it. The statistics which Dr. Freeman has given here show an extremely low mortality, especially when we consider that 80 per cent of his cases were acute. Taking my last one hundred cases I do not know what mortality would be shown. In my last twenty-seven cases operated during the past six months there was one death. In this case the appendix had perforated into the abdominal cavity and was operated within four hours of the beginning of the attack.

It seems to me that a great deal of valuable time is wasted in trying to educate the family physician so that he may care for his neglected cases. Better spend the time teaching that all cases should be operated early. Practically all surgeons are agreed on the advisability of early operation. Ochsner himself has declared in favor of early operation, and all the leading men of this country are agreed that within the first 36 to 48 hours appendix operations are almost always successful.

It appears to me that the energies of the profession should be directed to the study of the best way of handling these cases, so that fewer of them will become desperate and that all may be operated at the time when the percentage of loss is least, viz.: in the beginning of the first attack. I shall try the Ochsner method more in those cases that have been neglected, but at the same time I shall delay no early operations for the trial.

Dr. Miel: On this subject I would like to say my experience has been a little different from that usually given in regard to the recurrence of appendicitis. I recall a series of five or six cases occurring within three months, and some five years ago, in which no operation was performed, and I certainly do not regret putting off or not performing an operation. Besides which I recall numerous other instances of appendicitis where the individual was quite satisfied that no operation was performed. I have kept track of these cases pretty well, and think the expectation of unfortunate sequelae in cases that are not operated is considerably exaggerated. I would not do an internal operation before a second attack, as a second attack may not occur. A goodly proportion of these patients, after the attack, require nothing more than preventive measures against constipation and fecal irritation.

INTRAUTERINE FLUSHING AND DRAINAGE FOR INFECTION. THE PASSING OF THE CURETTE AND DOUCHE.

By H. G. Wetherill, M. D., Denver.

With the notable and perhaps the single exception of the gonococcus infection, which may be engrafted upon the healthy and unbroken mucous membrane, infectious diseases of the female genital and pelvic organs are to all intents and purposes nothing more nor less than wound infections. They are of the same origin and their course and consequences are similar to like pathologic processes elsewhere in the body, and they are subject to the same laws for prevention and treatment. The anatomic structures, the secretions and the relations of parts peculiar to this region do, however, exercise an influence over the growth and development of these infections, and to some degree they determine the direction and severity of the malady and its complications or sequellae. This is exemplified by the well known bactericidal power of the vaginal secretion on the one hand, and the peculiarly favorable conditions for the extension of established infections through the lymphatics, veins or peritoneum on the other. These local peculiarities play no important part in the modification of the rules for prevention or treatment, however, as the knowledge of the resisting power on the part of the vaginal secretion is no justification for lax methods in one's technique, nor does the particular anatomical arrangement justify or make necessary radical differences in treatment from that indicated in like infections in other parts of the body.

The broad, general principles for the prevention and treatment of wound infections are well worked out and established so far as is possible with our present knowledge of the sciences of bacteriology and surgery, and may be briefly summed up as follows: Prevention depends upon the *practical* sterility of the field and environment of the wound and of all things that come in contact with it, that is hands, instruments, sponges, sutures, dressings, etc. Treatment is directed, first, towards the localization of the infection through evacuation of pent up secretions and the relief of tension and consequent diffusion from absorption, which implies physiologic rest and drainage; second, towards the elimination of toxins and poisons already absorbed; and third, towards the support of the patient in his battle with the disease.

In regard to prevention, the qualifying word "practical" is used advisedly as it is well known that actual sterility is impossible of attainment for the hands and skin of the surgeon and patient, though it be so for the instruments and dressings; but it is also well known that from a practical standpoint the skin may be made so clean that infections do not occur, either through the attenuation of the virus or its dilution to a point where it may be taken care of by the tissues, some of which have great power in this regard, particularly the peritoneum. In this connection, permit me to say that our former faith in certain poisonous chemical antiseptics is waning and there is a growing disposition to depend more and more upon mechanical means (soap and hot water and a good brush vigorously used) and less upon the delusive dip of the half-washed hands into the one to one thousand solution of bi-chloride, the inefficiency of which is proven for this purpose as well as for the vaginal irrigations hereafter to be referred to.

Applied to infections of the female genitals, the general surgical principles here referred to simplify and facilitate the prevention and treatment of such conditions, and yield far better results than the rou-

tine treatment with the curette and bichloride douche, so long in vogue and still so tenaciously adhered to by many practitioners.

In maintaining that the curette and bichloride douche should not be used in *acute* infections of the female genital organs, I take the ground that they are unnecessary and universally injurious. That patients suffering from such conditions have been curetted and have recovered in the hands of many of us here must, in the light of the facts now before us, lead to the conclusion that they have recovered in spite of the treatment rather than because of it.

Please bear in mind that I am speaking of acute infections. Nothing said in this paper is intended to apply to chronic endometritis, the result of old infection; nor to those cases of sapremia, after delivery at term, nor of abortion, where the symptoms are clearly due to the retention of putrid products of conception, which must and should be instantly removed, with the dull curette if necessary. The differentiation of these conditions must be made, and in almost every instance can be made, by making a very careful study of the history and symptoms of the case; but if there be a doubt after a digital examination has told all that can be known in regard to the condition of the inside of the uterus and there be the least evidence of acute infection or of diffusion of the disease beyond that organ, the curette and douche should be discarded instantly as they can serve no good purpose, there being no foreign body to be removed. Furthermore, they do great harm through the distribution and dissemination of the infective process by breaking down the natural barriers and promoting the extension of the disease.

Please allow me to quote some eminent authorities in regard to this question, for while there is a very general agreement in regard to it among the leading gynecologists and obstetricians of this country, there is still a vast deal of uncertainty in the minds of many of the rest of us which should be cleared away at once in the interest of our patients as well as the credit of modern medical science.

First, as to the primary sterility of the vagina and the effect of the antiseptic douche upon infective bacteria when once introduced, Williams says in his excellent new book upon obstetrics (pages 775 and 776): "As a result, therefore, of the work of Kronig and Menge and myself, it has been fairly satisfactorily demonstrated that under normal conditions pyogenic cocci are never present in the vagina of pregnant women, and that therefore there is no possibility of auto-infection as far as these organisms are concerned, and whenever they are demonstrated in the uterine secretion of puerperal women, they should be regarded as affording conclusive evidence of external infection."

"An interesting fact in connection with the question of auto-infection is that those who believe most firmly in its possibility and who are in the habit of employing prophylactic vaginal douches for the destruction of the organisms in the vagina, have thus far been able to present far less favorable statistics than their opponents. Thus, Ahlfeld finds that 38 per cent of his patients have a rise of temperature during the puerperium, even after the use of the prophylactic douche. Again, Kaltenbach, while chief of the Lying-in Clinic at Halle, always resorted to its routine employment; but the statistics show a very material improvement since his successor, Fehling, discontinued the practice. Furthermore, the results of Leopold and Mermann, who do not use the douche at all, show a constant improvement corresponding with the increasing precision with which objective asepsis is carried out."

S. Mark, in an excellent paper on the

Bacteriology of the Puerperal Uterus, etc. (page 322, American Journal of Obstetrics for September, 1903,) says: "It has been proven beyond the shadow of a doubt that neither the staphylococcus albus and aureus nor the streptococcus pyogenes nor the bacterium coli commune are to be found in the healthy vaginal secretion of the pregnant woman."

Regarding the curette and antiseptic douche in puerperal infection, Williams says (Obstetrics pages 786 and 787): "Curettage as a routine measure in all cases of puerperal endometritis is by no means to be recommended, for the reason that in the most severe cases there is usually absolutely nothing in the uterine cavity which can be removed, and its employment can only do harm by breaking down the leucocytic wall, which serves to prevent the invasion of the deeper layers of the uterus by the offending bacteria. On the other hand, when the uterus contains more debris, its removal is more readily effected by means of the finger than by the curette.

"The routine use of *bichloride* or *carbolic intra-uterine douches* in the treatment of these cases is contra-indicated on several grounds. In the cases due to virulent streptococci a histological examination shows that the organisms have penetrated deep down into the tissues by the time the initial chill and rise of temperature occurs. Under these circumstances the employment of an antiseptic douche is not rational, inasmuch as the germicidal fluid cannot possibly penetrate the uterine wall sufficiently deep to reach the bacteria which are giving rise to the symptoms and upon which the further spread of the disease is dependent.

"Moreover, it has been shown experimentally by Bumm that bi-chloride injections penetrate the tissues only to a very slight extent. He took the liver of an animal dead of anthrax, and after soaking it for thirty minutes in a 1 to 1000 bi-chloride solution, placed it upon a freezing microtome, and cut thick sections from it. After cutting off about one-tenth of a millimetre, he inoculated the next section into another animal, with succumbed to anthrax, thus showing that the germicidal action of the bi-chloride had been exerted only upon the surface. If this be the case in the laboratory after the tissues have been immersed in the antiseptic solution, what effect can we expect upon organisms embedded in the muscular wall of the uterus from the transitory application to the surface of a few litres of a weak bi-chloride solution? Bumm likewise showed that the streptococci made their way through the uterus with great rapidity, traveling two centimetres or more in the space of six hours. What has been said concerning bi-chloride applies equally well to the other disinfectants.

"On the other hand, their employment in cases of putrid endometritis is even less rational. In the vast majority of such cases, simply cleaning out the uterus with the finger or curette, followed by a douche of sterile salt solution, will lead to a rapid fall of temperature and the amelioration of untoward symptoms. The object of giving a douche is simply to wash away the debris which has been left behind by the finger, and for this purpose sterile water or salt solution is far better than any antiseptic solution.

"In addition to these somewhat theoretical objections there is a very practical one: That the employment of antiseptics may do an immense amount of harm. Not a few cases of sudden collapse following the use of carbolic acid douches are on record, while in some instances intra-uterine injections of bi-chloride have been proved to have been the direct cause of death."

H. J. Boldt, in a paper on The Surgical Treatment of Puerperal Infection

(American Journal of Obstetrics for September, 1903, page 296), says: "The indiscriminate curetting which, unfortunately, is still being done to a large extent in puerperal women who happen to have an elevation of temperature, or who may perhaps have had a slight chill, cannot be too severely condemned. I have seen a number of deaths which, in my opinion, were indirectly due to that procedure. Another, although a minor intervention compared to curettage, resorted to much oftener than necessary, is repeated intrauterine irrigation. The chills which the patients often have after such intervention, may usually be ascribed to it."

At the last meeting of the American Gynecological Society, a paper was read by Dr. H. N. Vinebert, in which he said (American Gynecology, page 550): "Curettage was indicated where there were evidences of placental residue in the uterus, independent of the variety of bacteria that might be found in the uterine cavity. In those rare cases in which adherent and sloughing placental tissue could not be removed either with the sharp curette or fingers, hysterectomy was indicated providing the patient was not already moribund."

This statement was almost unanimously taken exception to by those who participated in the discussion, some of the opinions given being as follows:

Dr. William R. Pryor: "Relative to the use of the curette in a case of local infection—to inflict trauma over the whole inside of the uterus with this instrument usually means the dissemination of the infection, and I believe it is bad practice." He condemned hysterectomy unqualifiedly in patients suffering from septicemia, saying that nothing could be gained by the removal of the uterus.

Dr. J. Whitridge Williams: "If a woman has streptococcic infection the curette is harmful, and I believe the bad results of many practitioners are due altogether to the practice of curetting such cases. Whenever I see a woman with streptococcus infection, I do not think of using the curette, but simply gives her a single douche of sterile salt solution and leave her alone. On the other hand, if I find the uterus contains necrotic material, particularly if the infection is due to putrefactive organisms, I clean out the uterus with my finger. Even then I do not curette."

Dr. Edward P. Davis repeated the dictum of Leopold, that the surgical treatment of puerperal sepsis at present should be conducted on the one principle of the evacuation of pus or the drainage of abscess, and that hysterectomy is only indicated in those cases where the adherent placenta can be removed by no other method.

Dr. Malcolm McLean of New York City said he has found that curettage has become a uniform method of treatment in the hands of the average obstetrician, and even the sharp curette was used in many cases, the consequence being that the mortality has been increased enormously in septic cases. Emptying the uterus is an absolute necessity, especially where there is evidence of putrid absorption, attended with chill and high temperature. The endometrium should be left alone as much as possible. The intrauterine irrigation tube has its place in washing out the detritus, but he questions the propriety or safety of repeating these washings frequently. He recommends the use of iodine water for douching.

Dr. Henry D. Fry: "If the streptococci infect the musculature of the uterus, one cannot possibly reach the infection with the curette, but in the majority of cases of streptococcus infection the area is localized. It is not general. Nature attempts to protect the patient by throwing out a protective zone of inflammatory tissue in

which there are a number of leucocytes, and the streptococci are kept out. If the curette is used, this protective zone is broken down, so that the streptococci are enabled to gain entrance to the system and cause a general systemic infection." In cases of criminal abortion he has repeatedly seen cases with septic conditions doing fairly well; yet after the use of the curette some of the patients died in the course of a few days.

Dr. Seth C. Gordon: "Every time an abrasion is made in the uterus with the curette or knife, in the vagina or anywhere else, unless the operator goes straight to the point of infection, he opens up a new avenue of infection." He thinks the use of the curette ought to be largely out of date.

In his beautiful new book, just from the press, "The Practice of Obstetrics," Dr. J. Clifton Edgar says: "The endometrium should never be curetted in streptococcic infection; in the first place 80 per cent of these patients recover spontaneously from the formation of a protective layer of leucocytes in the decidual lining of the uterus. The germs leave the uterus in connection with the necrosis and expulsion of the decidua; the use of the curette is therefore distinctly meddlesome. It breaks down the defensive wall and allows the streptococci to penetrate into the uterus and gain the peritoneum; this being the method by which curettage may set up peritonitis."

That the use of the curette is irrational in these acute infections, which are mostly of the streptococcus, staphylococcus or colon bacillus varieties, is bound to be conceded if we agree that there is very often no putrid foreign body to be removed from the uterine cavity, and that even if there were it would be unwise to break down the natural barriers to the extension of the infective process with the curette, when the indications of the case can be better met by other means.

The intrauterine and vaginal douche of bi-chloride of mercury is also now generally believed to be without other good effect than the mechanical one of washing away the accumulated discharges, a function which is better met by the douche of plain water or of salt solution. On the other hand, it has been definitely shown that the douche of bi-chloride solution as a preventive measure and as well as a therapeutic one is a potent factor for harm in that it reduces the natural resistance of the vaginal secretion to infection, washes away the natural lubricant of the genital canal, thus predisposing the obstetric patient to lacerations that might not otherwise occur, and farther complicates the case with the danger of mercurial poisoning. In addition to all of this, the disturbance of the parts incident to giving an intrauterine douche for an infection, almost always results in the diffusion of the disease, as is evidenced by a material rise of temperature afterwards.

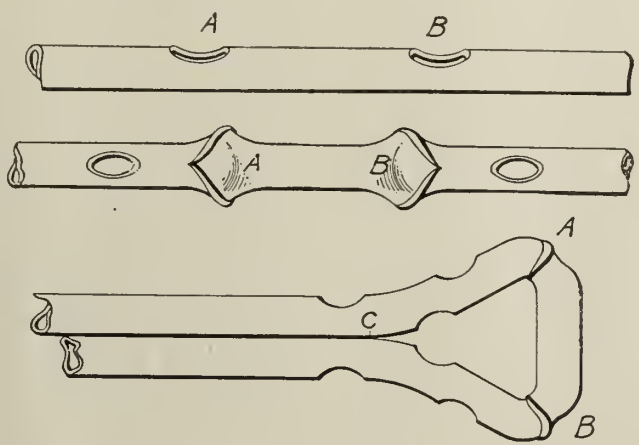
The conclusion seems to be forced upon us that in the presence of an acute infection of the genital tract of women, incident to either labor at term or to abortion (complete or incomplete), the indications are to remove putresable material when present, with as little disturbance of the tissues as may be possible; to provide perfect drainage and a means for maintaining it without disturbing the patient or the parts involved, to secure absolute rest, promote elimination and sustain the general strength of the patient and fortify her in her battle with the disease in all possible ways. Briefly stated, the indications are to treat infection of the female genital organs just as the modern, up to date surgeon should treat like infections elsewhere in the body, the cardinal principles being absolute rest and quiet of both the patient and the part in-

volved, drainage and evacuation of septic foci, soothing and cleansing applications to the parts, promotion of elimination and support of the patient.

Conceding then that the uterine curette and antiseptic douche are at last to be set aside by the rational scientific practitioner of our profession, what have we offered to take their place, for in my judgment the passing of these vicious devices for the treatment of genital sepsis depends upon the substitution of some other plan of treatment which appeals to us as

ergy along safe therapeutic ways in order to keep him out of the old rut.

The plan I propose for the treatment of these infections meets all the requirements stated and conforms to those general surgical principles accepted everywhere as being the best for such infections in other parts of the body; furthermore, it has been tried sufficiently and in the hands of enough men of skill and ability to have established for itself a record of good results unattainable by any other plan.



THE TUBE.

1 Cut two holes in a long piece of drainage tubing as indicated at A and B. 2. Draw one end of the tube through A and out at B, thus inverting that portion of the tube between the holes as seen in 2. 3. Bend the legs of the tube down so that the holes A and B will be left open for drainage. If bent in one direction they are open, if in the other closed. Tack with a blind stitch at C.

being practicable and can be shown to produce superior results. The curette and douche habit is so entrenched in our minds and so much a part of our routine practice that it will not be abandoned upon the simple ipse dixit of a few bacteriologic, gynecologic and obstetric experts who may have demonstrated to their own satisfaction that it is dangerous and should be stopped, because forsooth they give us nothing to take its place—and the practitioner of this day is nothing if not aggressive, active and too often meddlesome through his desire to be up and doing. So it is of vital importance to direct his en-

The plan I propose and use comprehends the removal of putresable debris from the uterus by the finger and blunt placenta forceps, followed if necessary by flushing with salt solution, permanganate of potassium solution or diluted alcohol, all nontoxic and used only for their mechanical effect in washing out loose fragments. Then my double drainage tube is gently inserted to the uterine fundus and flushed with salt solution or diluted alcohol to assure its freedom from obstruction by clots and debris. The vagina is lightly packed with iodoform gauze and the patient is returned to her bed if she

has been removed, for no anesthetic is given and the manipulation is so gently done that none is needed. The tubes are then flushed every two to four hours with alcohol of a strength varying from 25 per cent to 95 per cent, according to the severity of the symptoms and the degree of smarting it produces at the vaginal outlet. This is a modification of the alcohol method of Corossa; but in my judgment and experience a very important and valuable change has been made in leaving all packing out of the uterine cavity and in the use of double tubes for flushing and drainage without disturbing the patient from her position in bed.

So-called drainage with gauze is no drainage at all in the proper acceptance of the term, and though it does carry off a limited amount of thin fluid or blood serum, it acts as a perfect dam for pus and the broken down particles resulting from suppuration and sloughing, while the flushing tube to which I refer carries them off at frequent intervals and keeps the cavity free from that distension and pressure that is so great a factor in promoting absorption. The moment the tension is relieved from an abscess cavity the septic absorption is apt to be arrested and the fever subsides; and the same principle obtains in this very case, for how often do we find a tight internal os damming back an ounce or more of filthy, foul-smelling debris.

Furthermore, the diluted alcohol used for flushing the tubes meets other indispensable indications in the treatment of such cases; for besides the mechanic effect of removing debris, it has the virtue of a chemic action in arresting putrefaction and bacterial growth, the same as when the tissue is placed in a bottle containing the alcohol, the uterus in this instance being the bottle in which the alcohol is so frequently poured. It is also non-toxic, and its supporting and stimulating effect, through being taken up by the absorbents is no insignificant factor, giving a physiologic effect as well. Best of all, however, are the facts that it can be employed by every capable practitioner everywhere and that its use involves no surgical operation, no anesthetic, no frequent and painful handling of the patient, and that it will yield results heretofore unattainable by any other method.

In a paper read before The El Paso County Medical Society last February and published in The American Journal of Obstetrics, Vol. XLVII, No. 5, 1903, the details of my method are given with some reference to results and with a typical temperature chart, it having for a basis the Corossa alcohol irrigations, but with the vital difference that the tubes are used double and without the gauze packing, which are details I find absolutely necessary for the attainment of the best results.

At the Woman's hospital in Denver the method is the routine treatment for all intrauterine infections after abortion, complete or incomplete, or labor at term; and there we get not a few of both of these varieties from the outside in various stages of progress, and so long as there is no great diffusion of the disease beyond the genital organs themselves and no metastatic septic foci in the lungs or elsewhere the patients are found to make rapid and complete recoveries; and even in some instances where the disease had been broadly disseminated and a septic pneumonia established, the recovery was complete and satisfactory, though somewhat tedious.

In conclusion, I must beg that you will forgive any seeming excess of enthusiasm or any insistance in my words or manner in the presentation of this matter, but I have been so impressed with the great dangers of the prevailing practice in the treatment of acute genital infections with the indiscriminate application of the curette and bi-chloride douche, with the utter in-

adequacy of other well-known measures and our helplessness in the face of one of the most common and dreadful diseases known to us, and last of all, with the safety, simplicity and security of the method here advocated, that a vigorous presentation of the subject has seemed to me to be fully warranted and justified.

Discussion.

Dr. Rogers: The danger of the use of the curette on an inflammatory area has, I think, long been fully realized by most surgeons. I have cautioned surgical students against its use for many years. I am very glad indeed to see that the gynecologists also are coming around to this point of view. The curetting of an inflamed uterus is certainly a dangerous procedure. Dr. Wetherill has, I know, long held these principles and I am glad to see that gynecologists all over the country are coming to grasp the idea. The advice he gives is certainly timely and well put.

Dr. Hamilton: Of course I am not a practitioner of such extensive practice as Dr. Wetherill or some of the others, but in my limited practice I would express my view on the part of curettement. Of course I perfectly agree with Dr. Wetherill on curetting with a sharp curette, but I have had in my practice several cases, especially cases after abortion by the women on themselves, and the uterine cavity was entirely emptied, and a week later, or, rather, in one case it was a week later and in the other cases was two or three days later, they had pulse and high fever, and I was called to those cases and I immediately thought that there might be some placenta or other debris, and I took a blunt curette and gave an intrauterine douche of potassium permanganate. The fever at the time when I gave the intrauterine douche was 102 to 103, and within an hour the temperature fell two degrees, showing that the intrauterine douche of the solution of potassium permanganate immediately removed the factor which caused the fever to rise.

Dr. Perkins: I like the plan suggested by Dr. Wetherill very much, but use it somewhat modified. He speaks of the germs being deep in the tissues. This I believe to be true. The method which I employ I think is better adapted to take care of the germs that are deep in the tissues than the plan which he suggests. The plan which I follow is to clean out the uterus with a dull scoop or placental forceps, something that will not injure the uterus, and then I introduce a stiff drainage tube, a single drainage tube. I generally use the largest size rubber male catheter so that the pressure around it will not cause it to collapse. I cut one or two extra eyes in the closed end of the catheter, introduce it to the fundus, and then with a cylinder packer I crowd the uterus as full of gauze as I can crowd it. Then I use as much alcohol as is necessary to saturate the gauze, injecting it through the catheter. The patient is then put to bed—a little loose packing or none at all is put in the vagina—and the nurse injects a half ounce of 95 per cent. alcohol every three or four hours through the catheter, keeping the inside of the uterus constantly saturated with the alcohol, and the gauze holding it to the wall, gets penetration as deep into the tissues as it is possible to do. In a few days this is removed. My cases treated in this way have done remarkably well.

Discussion closed by Dr. Wetherill: First, in reply to Dr. Hamilton, I want to say that he has given us an example of just exactly what I hoped to call your attention to in the paper, and that is, the mistake that is made in differentiating sapremia from septicemia. If he curetted his case and got an immediate fall of temperature, he did not have a case of septicemia at all, but a case of sapremia. He got a fall of temperature because he removed the decomposing fetal debris from the uterus, and not because he neutralized the infecting bacteria in the slightest degree by his permanganate or by any other solution which he might have used in this instance.

Dr. Perkins has outlined what is practically the original Corossa method for the use of alcohol in the uterus, and it is a good method so far as it goes, but it doesn't go far enough. If Dr. Perkins will use the method I have suggested, using a double drainage tube in the uterus as big as one's finger, with large holes in the top, and will watch the big pieces of debris and broken down endometrium which are washed from it, I am sure he will never again feel like damming them back into the uterus by means of gauze, even if he does keep his gauze aseptic with alcohol. Alcohol will do this just exactly as if you should take those pieces of broken down, stinking endometrium and put them into a jar with this alcohol. The alcohol will stop the putrefaction, and you can arrest that putrefaction in the uterus in

just the same way by keeping the uterine cavity flushed and saturated with alcohol at short intervals. Furthermore, my friend Dr. Perkins unconsciously makes another very great mistake in using 95 per cent. alcohol. Ninety-five per cent. alcohol coagulates the mucus and albumin and is not taken up by the absorbents and does not flow through the lymphatic channels of the uterus, as does the 25 per cent. or 50 per cent. solutions, which are equally valuable. If he will throw away his curettes and make these changes, his results will be even better and more satisfactory than heretofore.

CHOLECYSTECTOMY VS. CHOLECYSTOSTOMY—A PLEA FOR THE PLAINTIFF.

By Maurice Kahn, M. D., Denver.

Recently it was stated by Hutchinson that a gall bladder is a nearly functionless organ, insufficiently capacious to act as a reservoir of any value, and inadequate in muscular power to exercise any important effect upon the pressure of the bile flow. It is chiefly notable as a settling basin for stone formation and as a suitable harbor for the multiplication of pathogenic bacteria. In short, it seems a source of danger greatly disproportionate to any usefulness which it may possess. That it is not needful to health has been proved on innumerable occasions by its removal without noticeable injury. That its removal is essential to comfort in many cases is an indisputable fact.

Not long ago Roswell Park directed attention to the many characteristics of the gall bladder analagous to the appendix, and advocated such treatment of this viscus when diseased as would be afforded the appendix under similar conditions. The earlier writers on surgery of the biliary tract advocated cholecystostomy and drainage to permit the spontaneous discharge of stones frequently overlooked. While this was sufficient in Tait's day, it is insufficient now except, perhaps, for those few to be found in every age who, recreant to their trust, remain stoically apathetic to the penetrating light of advancing science.

In the past, stones situated in the common duct were the ones most frequently overlooked; but at the present time, by practicing the Robson technique, with which exposure of the common duct even in obese subjects is accomplished with comparative facility, with patience and care such an event should not often occur. Furthermore, inasmuch as impacted stones in the common duct usually result in a dilatation of the duct, digital exploration is frequently possible. Notice was first called to this by Mayo Robson, who strongly emphasized the point.

That cholecystectomy is not more hazardous than cholecystostomy is a fact substantiated by every surgeon of experience with the two operations. And here it may be said that septic cholecystitis is no more a contra-indication to cholecystectomy than septic appendicitis is a contra-indication to appendectomy. Further, the thick walled bladders found in pus cases are functionally useless anyway, and should be excised, avoiding the peril of a second operation.

Any operation on the gall bladder presupposes some disease thereof; if for cholelithiasis, then the presence of these stones, in accordance with modern pathology, is evidence of a diseased gall bladder, and a diseased gall bladder being a menace to life, as such, should with its dependent dangers be removed, and not merely opened and drained. For weeks and sometimes months following cholecystostomy there is a troublesome fistula discharging irritating secretion. Furthermore, the fistula may be persistent, necessitating secondary cholecystenterostomy or cholecystectomy. A grave toxemia consequent upon cholecystic disease is not uncommonly encountered. Drainage would afford temporary relief, perhaps, but with-

out any assurance of its permanency. Pancreatitis may be co-existent. Ablation of the gall bladder eliminates the risk of its aggravation from disease of this organ, and there will not be any stones subsequently to irritate the pancreas. By excluding the probability of stone formation, we practically eliminate the possibility of cancer from this cause, which is universally conceded to be by far the most frequent etiologic factor. Succeeding empyema is impossible as is also secondary obstruction of the cystic duct, with its periodic colic, proceeding from gall bladder secretions being forced through the strictured duct, which stricture follows ulceration of the duct or kinking or constriction from adhesions. Again, post-operative adhesions are more extensive in cholecystostomy than in cholecystectomy, hence a greater likelihood of their limiting the normal movements of adjacent viscera, particularly the stomach and duodenum, possibly demanding secondary operation for their release. Besides, in drainage cases there is greater danger of hernia developing.

In case of impacted stone in the cystic duct, the trouble of its removal is avoided and time saved by ligating below the stone and removing duct, bladder and stone entire. Also stones in this situation have frequently escaped observation; this danger would also be avoided by its complete removal.

Mayo's method of removing the gall bladder I consider the simplest. Briefly, it is as follows: The cystic duct is cut across above curved forceps which clamp the duct and vessels. The duct and bladder are then removed from below upward, thus avoiding the troublesome hemorrhage with obscuring of the operating field which occurs in working from above downward, when the same vessels are severed again and again.

As evidence of my robust faith in the procedure advocated, it will be sufficient to report a case operated on a few months ago. It is noteworthy that the case presented the two conditions which typify the classes wherein drainage is usually advised, viz., stones in the common duct and empyema. I was summoned to this patient on the evening of December 24, 1902. Mrs. G., 23, married two and a half years, one child two months old, nursing. One miscarriage one and a half years ago. Present illness began in July, 1900, since which time she has had occasional attacks similar to the one for the relief of which I was called, but less severe. She complained of excruciating pain in the epigastrium and right hypochondrium, and cried lustily for relief. During the attack this pain extended up posteriorly to between the scapulae. Examination: A woman well developed and well nourished; slightly jaundiced; right rectus muscle rigid; epigastric and right hypochondriac regions sensitive, as was also a small area posteriorly about eleventh dorsal vertebra; slight dullness over the area of the gall bladder; no nausea nor vomiting; no history of chill; perspiring some at time of visit. Temperature 99.6; pulse 100. The diagnosis of gall stones was made and operation advised. Periodic pain continuing, consent to operation was obtained on the 29th of December.

Operation 30th of December; longitudinal incision 3½ inches long through right rectus muscle, separating its fibres. After opening the peritoneum and sweeping an exploring finger about, intestines were found to be adherent to the anterior abdominal wall. The gall bladder was buried in adhesions involving stomach, small intestines and colon. The gall bladder was liberated with great difficulty, profuse oozing being a bothersome accompaniment, particularly in breaking up some of the more recent adhesions. And, as is not infrequently the case, the tissues were

so friable that the ligature could not be utilized for the control of hemorrhage. After walling off the thickened and distended gall bladder, it was incised and emptied of pus; 130 stones were also removed, many of which were packed in the common and cystic ducts. Some of these were extracted with forceps; some were extruded by a process of milking, with pressure from without the ducts. Following this, the gall bladder and its duct were removed in toto by transfixing the stump, tying in two directions, and cauterizing with carbolic. The friability of the surrounding tissues would not permit of the stump being overspread. By reason of the peritoneum being so easily lacerable, the abdominal wall was closed in two layers instead of the usual three. Patient left the table with pulse of 120. The wall of the gall bladder measured ¼ inch in thickness. She made an uneventful recovery, the wound healing kindly by first intention, and was on the street on the fourteenth day following operation, without a post-operative abdominal belt.

It is remarkable that the patient was treated for two and a half years by numerous physicians for "stomach trouble." The age of the patient was doubtless a factor in the erroneous diagnosis. Be this as it may, I believe such errors are of too frequent occurrence, and are to be carefully guarded against by the intelligent interpretation of the symptoms evidenced rather than by the search for a cardinal index or a pathognomonic sign.

Discussion.

Dr. Sheldon: Operations on the gall-bladder are practically limited to the performance of two operative procedures: Removal of the gall-bladder; or drainage of the gall-bladder. Now what we want to know is when to do the one operation, and when the other. During the last two years, or even longer, the tendency has been to consider cholecystectomy the operation of choice in most cases. I believe that some authors have gone too far and have advised cholecystectomy too often.

The indications for cholecystectomy, as I see them, are these:

1. Malignant disease of the gall-bladder.
2. Complete and permanent occlusion of the cystic duct.
3. A dilated, enlarged and chronically inflamed gall-bladder, and cases where one has reason to believe that the gall-bladder will not properly empty itself through the cystic duct.

I believe that cholecystectomy is an operation that is indicated only in chronic conditions. At present I can see no positive indication to do a cholecystectomy in any acute disease involving the gall-bladder. All of the acute and serious conditions involving the gall-bladder are due to or are accompanied by an infection; and in cases of acute infection of the gall-bladder, I believe drainage and not removal of the viscus, to be the operation of choice for the following reasons:

1. Cholecystostomy affords as much relief to the patient as does cholecystectomy.
2. It is more quickly and easily done.
3. It is attended with less shock, and does not offer the same risk of spreading infection as does removal of the gall-bladder.

I am of the prime opinion that drainage is the operation of choice in acute infections of the gall-bladder, and that the safeness of the operation will over-balance the possibility of fistulas or secondary operations. I maintain that a patient with a fistula, or one who has to undergo a secondary comparatively safe operation, is better than a death from an extensive and complete primary operation.

Dr. Miel: It may be said that we are in the waning stage of the surgery of the gall-bladder; notwithstanding that for the last few years the surgery of the gall-bladder has attracted a great deal of attention and a great many cases have been operated, and the statistics published have in many instances been attended with flattering success. Where the matter of operation is to be advised, I want to lay stress on the encouragement—the amount of encouragement—which is proper under the circumstances. We might have only a condition calling for simple drainage, but we can never tell what we have beyond this; and it may follow or happen that the operation is undertaken without considering the great hazard which that patient may be placed in. I want, then, to emphasize the fact that in advising operation it should be brought to the patient's knowledge with a great deal of conservatism. No one

should rush into these operations and no inducement should be given to the patient. An operator should tell his patient exactly what he thinks in the matter, and observe the same consideration as if he were operating on one of his own family. In which case, if the operation should be followed by death he has perhaps nothing with which to reproach himself. I myself have reason to feel that in cases of this kind I will make my patient and his relatives understand the gravity of the situation.

Discussion closed by Dr. Maurice Kahn: In closing the discussion I have only one or two words to say. I do not see why we should apply Dr. Miel's advice to gall-bladder cases alone. I believe that is the position which every conscientious surgeon will take regarding every operation. It is easy enough to promise things, but when you get into an abdominal cavity there is no man under heaven, I believe, who can tell just what he is going to find. You will find adhesions not expected, you will find pus you were not aware of, and you will find complications you were not looking for; and the advice that he says should be given to patients, I believe is very good and should be extended through the entire domain of surgery. In reply to Dr. Sheldon, there is only one thing I wish to speak of. He made the point of time as a factor in favor of drainage. I believe that the gall-bladder can be removed and the patient sewed up tight as readily as you can stitch the gall-bladder to either the fascia or to the peritoneum. The acute infection cases are the ones the doctor spoke of as being the ones in which drainage would be preferable. I believe these are the ones in which it is not preferable. Get the thing cleaned out, because that acute infection indicates, to start with, that our surrounding tissue is not up to normal, and being in a subnormal condition should not be subjected to the increased danger of infection from your drainage, which always is a danger, and not an imaginary one either.

SPECIFICS AND SPECIFIC METHODS IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

By S. Simon, M. D., Denver.

While it may be strictly correct to state, "that a remedy is specific when it corrects certain well determined deviations from the normal or health state," for the purpose of this paper this view will not be adhered to. To illustrate: Pulmonary tuberculosis may have a half-dozen or more distinct pathologic changes bearing a definite relation to one another, as for example anemia, which is a pathologic change in the blood commonly resulting from pulmonary tuberculosis, and which can be corrected by iron. But iron cannot be regarded as a specific for tuberculosis, although it may indirectly influence that disease. Unless, therefore, the remedy, "while correcting one abnormal lesion or condition, at the same time arrests the entire chain of morbid phenomena, it cannot be regarded as specific." Arsenic, on the other hand, may be regarded as a specific for tuberculosis, since by its alterative action on the blood, it can be considered as unfavorably influencing the growth of the tubercle, and therefore arresting or curing the disease, while indirectly acting as a tonic. All remedies or methods of treatment for which is claimed a cure or arrestment of the tubercular process may be regarded as specific.

From the time of Hippocrates until the present, the treatment of consumption was conducted in accordance with the views held as to the pathologic character of the disease. Hippocrates considered phthisis a suppuration of the lungs due to different causes, and curable in certain cases. Galen also looked upon phthisis as a suppuration or ulceration of the lungs, and in accordance with his views on the treatment of ulceration in other organs, he treated his phthisical patients by sending them to places where the air was dry, and in this manner he hoped to dry up the secretions and stop the ulcerating process. There is no doubt that he must have obtained good results by this treatment, for while he sought dry air, he incidentally obtained pure air. From the time of Galen to Sylvius no advance was made in the pathology of phthisis,

and therefore no advance in its treatment. Sylvius recognized nodes in connection with suppuration of the lungs, but did not materially improve on Galen's treatment. Bayle, early in the nineteenth century, recognized miliary tuberculosis and described six varieties of tubercular phthisis, declared it was a specific disease, and that it was curable. Laennec, who first described the tubercle accurately and recognized the common pathology of the different varieties, regarded tuberculous phthisis as practically incurable in the early stages, but curable in the later stages. That is, after the tubercle had softened and produced evacuation, cicatrization would take place and thus the disease would become cured. He recommended sea voyages as the best means of treatment, or when this was not possible, the production of an artificial marine atmosphere, which the patient was to breathe.

From Laennec's time to the discovery of the bacillus of tuberculosis by Robert Koch, no important advance was made in the treatment of pulmonary tuberculosis; in fact, the entire medical world had lapsed into a condition of apathy with reference to the cure of this prevalent disease. But with Koch's announcement a new stimulant was infused and numerous remedies and methods were advocated to cure the disease whose specific cause was now known.

Antiseptics aimed towards killing the bacillus were given by the mouth, bowels, respiratory tract, or directly into the lungs through the thoracic walls. I shall not attempt to enumerate all the antiseptics and drugs which have been tried, but shall content myself with mentioning those most widely used, and briefly discussing their merits.

Creasote, with guaiacol and its carbonate and other salts, has been the most popular, and is to-day probably in more general use than any other drug. But it can hardly be considered specific, although it seems in many cases to bring about an improvement in the unfavorable symptoms accompanying pulmonary tuberculosis, its action is probably indirect. It is usually given by the mouth, and occasionally by inhalation in combination with other drugs.

Probably the next most popular drug has been *arsenic*, for which specific properties were claimed; but in the light of experience its action is principally tonic, and where good results were obtained from its use, it acted probably in that way.

Iodine and its compounds, aristol, europhen, iodoform, iodopin, have been and are being used as injections and inunctions combined with olive oil. This group was the basis of the Shurly-Gibbs treatment so popular some years ago, which consisted of inhalations of chlorine, with hypodermic injections of a solution of iodine in glycerine, alternately with one of chloride of gold and sodium. While this group of remedies still has its advocates, I hardly believe they claim for them specific effect.

At one time Bergeon's *gaseous enemeta* of carbonic acid and sulphuretted hydrogen was in popular use, with the hope that it was a bactericide, but it proved to be a failure.

Various antiseptic substances, such as the oil of cloves, turpentine, eucalyptus, peppermint, tincture of benzoin compound have been used by mouth, as injections and as inhalations in the hope of arresting the tuberculous process. Cinnamic acid and its compounds have been used principally by injection in order to bring about cicatrization of the tuberculous areas in the lungs. According to Burney Yeo, the inhalation of these antiseptics, if persisted in, will prove efficient in certain cases. It has been satisfactorily demonstrated that the vapors of these various antiseptics fail to reach the af-

fected part of the lung; but they unquestionably do good by stimulating and antisepticizing the mucous membrane of the trachea and bronchi, and thus facilitate expectoration, and ease the cough.

Intra-laryngeal injections of a 10 per cent solution of menthol in glycerin, of izal and other remedies, have been tried; but there is one great objection to this form of treatment, that is the difficulty of finding many patients who can stand the treatment. Besides, I agree with Yeo when he says that the same results are obtained by inhalation with far less inconvenience to the patient.

The *Nuclein* treatment has had a number of advocates. By this method, the white blood corpuscles (polynuclear) are increased, and the system has more phagocytes to destroy the micro-organisms that attempt destruction of the lungs. Victor C. Vaughn, the principal exponent of this treatment, claims that it acts as an arresting and curative agent in early cases; but as Vaughn also uses dietetic and hygienic measures in his treatment it is difficult to say whether his results ought not to be attributed to the latter measures.

We now come to the various *serum treatments,* which within very recent years have agitated the medical and general public. *Tuberculin*, the first, brought forward by Koch, is but little used now in the treatment of tuberculosis. Whittaker of Cincinnati is about the only prominent clinician in this country who uses it. He says: "Proteids of other bacteria produce similar irritation as tuberculin, which with cautious dosage may be confined to the diseased centers; and when it does produce a cure, this is effected by the inflammatory irritation around the tubercle which causes the death of the bacilli." Whittaker recommends tuberculin in pure tuberculosis, except in cases of hectic, hemorrhage, and serious affections of the intestinal canal. As nearly 90 per cent of cases are excluded by this limitation, and as the other 10 per cent would probably get well under any form of treatment, I cannot see how tuberculin has any merit in treatment even according to Whittaker's own testimony. The concensus of the opinions of general practitioners regards it as a dangerous remedy, which is liable to start up tuberculous infection in healthy parts of the lungs. Personally I question the propriety of its use as a test for the existence of tuberculosis in man.

Now in regard to the various modifications of Koch's tuberculin, such as tuberculocidin, antiphthisin, the aqueous extract of purified tuberculin of Von Ruck, Hirschfelder's oxytuberculin and Koch's new tuberculin R, they have been used with indifferent success by various clinicians. Knopf, in his article on tuberculosis, in the *Twentieth Century Practice*, says of them collectively, "Whenever a new culture product is discovered and through experiments on guinea pigs is shown to have a specific antituberculous effect, it is usually recommended with the following restrictions: It is not to be used in advanced cases, in mixed affections or as an exclusive remedy, but always in connection with the best of hygiene, and the best of diet, and the symptomatic treatment must not be neglected. And the results of the treatment read about as follows: A large percentage of incipient cases have been cured, a small percentage of advanced cases have been benefited, a still smaller percentage have remained indifferent to the treatment and a very small percentage have died. Then he adds most pointedly: "Cannot any one private practitioner or sanitorium physician report just as good and even better results whenever hygienic, dietetic, symptomatic and educational treatment has been carried out conscientiously without the aid of any specific or antibacillary remedies?"

Very recently, the idea has been advanced that if the streptococcus infection in pulmonary tuberculosis could be eliminated, and the pure tuberculous condition established, a cure could be more readily obtained. To that end *antistreptococcus serum* has been injected, and it is claimed with good results, namely, reduction of temperature and improvement of other symptoms. I have tried it in four cases of my own and saw two patients who had received those injections from other physicians, and judging from the results, I am not very enthusiastic over this method. Theoretically, it does not appeal to me either. To my mind the antistreptococcus serum should be used only in those cases in which the streptococci or their toxines can be demonstrated in the blood, as in cases of general septicæmia. Unless, therefore, it can be demonstrated that the patient's fever is due to the streptococci or their toxins in the blood, the use of the serum is not indicated. Upon this subject Knopf, in his article on tuberculosis in the *Twentieth Century Practice*, says: "The action of the serum is not always uniform, and there are evidently other associations, with the bacilli besides the streptococci, which cause the hectic condition of the patient."

Soon after Finsen announced the results obtained by the *actinic rays* upon lupus, numerous experimenters tried to obtain cures by their application in pulmonary tuberculosis. Kime devised a compound mirror from which the actinic rays of the sun were reflected (the heat rays being absorbed) on the bared chest of the patient who sits in front of it. No wonderful results were reported from this treatment. Sterne of Indianapolis devised a cabinet in which the patient was placed nude, surrounded by specially wound Voltaic arc lamps, at the same time the air breathed by the patient is charged with free ozone or formal ozone. According to Sterne, the nude body being bathed in actinic light, this penetrates the skin and enters the blood corpuscles coursing beneath, causing an increase of hæmoglobin and a quick augmentation of the corpuscular elements. This treatment was tried faithfully at the National Jewish Hospital for Consumptives, with negative results.

Have we then any true specific in the treatment of pulmonary tuberculosis? I do not believe there is or ever will be any one remedy which will prove specific. Especially where the destruction of lung tissue has taken place, it is beyond reason to expect restoration to its original state. In acute phthisis, where profound constitutional disturbances have occurred, nearly every remedy is bound to fail. Rarely it is possible to check the rapidity of the disease, and thus convert it into the more chronic form. A great deal can, however, be done for the early cases of chronic pulmonary tuberculosis, and a large percentage of these can be cured. One thing the phthisio-therapeutist has learned, that he cannot treat the disease as an entity, he must conduct the case according to peculiarities, tempermental and physical, of his patient. He has at his command one great therapeutic measure, to my mind almost specific, and that is, plenty of pure aseptic air. Learn the patient's previous condition of life, correct such faults as may exist as to his environment, diet, personal hygiene, breathing, exercise, habits and dress. When possible, a patient living in a closely built city should be sent to a place where he can obtain the largest percentage of sunshine in elevated localities, with an altitude of two to six thousand feet.

Sanitoria located favorably are certainly most desirable, for here the daily life of the patient is regulated under the supervision of a sanatorium physician; but much can be done with home treatment and the intelligent co-operation of

the patient. It is then by ærotherapy, personal and general hygiene, dietetics, pulmonary gymnastics, together with hydrotherapy and the symptomatic treatment with drugs, that the physician of to-day is curing his cases of pulmonary tuberculosis.

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Discussion.

Dr. Denison: I regret that there is not more time in which to discuss this question. I was interested in the doctor's resume of the so-called specific methods. It seems to me that the question whether or not there is a specific for tuberculosis is a different one from what many seem to think. I believe, if there is a specific for tuberculosis, a real, true specific, it must come from the toxin itself. As I have had some experience in this line, and in an earnest way have tried to find out just how far the toxin could be used and in what kind of cases, I will say that the results in those cases which were carefully selected have been favorable in my own hands. I believe that I can determine the healing process in recent or slight lesions where the effect which Whittaker said was due to tuberculosis is produced. In larger doses you get an inflammatory engorgement, in small doses you get a local stimulation.

The reason that the system cannot appreciate the amount of tuberculosis which is in the system is, to my mind, that the defensive process of the body against the tubercular poison prevents that recognition of it which obtains with other toxins, that of diphtheria for instance. The tubercular germs themselves are covered with fat and cellulose which, while they conceal the harbored toxin, forestall its appreciation by the system. The leucocytes have built their walls of protective tissue around the places where there is infection, and there is also the active defense of fibroid processes against any due appreciation of that poison. Now very small doses of that toxin, the effect of which the system has to fight against (if introduced into these cases where the system is not already overpowered by its efforts to throw off the malady) do stimulate in a true specific way the efforts of nature against that disease. Many years ago I thought I discovered the evidence of that healing effect in the auscultatory sounds heard—the higher pitched broncho-vesicular breath-sounds which you first get in slightly infected areas, and it even enabled me in one or two cases to diagnose the presence of infiltration or commencing tubercular infection in the lung opposite to that which was chiefly diseased. Thus, that sign is a guide to one as he gives little stimulating doses, commencing often with a milligram of the very best form of tuberculin made: and that is the watery extract of Von Ruck, which is even better than Koch's tuberculin. By commencing with very small doses and watching the effect, a good knowledge of the susceptibility of a patient is soon obtained. We can use other means at the same time. We are not hindered from using every good effect of tonics, climate, graduated exercise and hygienic outdoor living. I have been gratified with my own personal results, as I have shown in the published reports of cases. As to this treatment being limited to the initiatory cases, a case may be in the third stage of tuberculosis and still be amenable to help, nearly as much as though it were in the beginning, because that advanced stage is limited in area and nature's defensive process around it is already well established.

Dr. Beggs: What conditions must be filled to give a therapeutic remedy or procedure the right to be considered a specific? It is not sufficient if in an early stage of chronic infection, which may intrinsically be of a mild character, it is administered, accompanied with the best and most hygienic and other necessary treatment, and the result is an apparent cure or a marked amelioration in only

a certain, though possibly major, percentage, while in those cases a little further advanced the apparent benefits are markedly less; and it is practicaly without result in those cases still farther advanced? It must be a remedy which, when administered **secundem artem** in an actively progressing uncomplicated case of a pure type, produces practically uniformly a restoration to health, regardless of even a temporary intrinsic tendency of the morbid process to the contrary.

Judged by this standard, we have not a single therapeutic agency which can lay the slightest claim to specificity in tuberculosis or consumption. There is not a single one for which even its most ardent supporter claims that it has the slightest effect in curing or beneficially modifying the purest types of pulmonary tuberculosis, viz., acute miliary tuberculosis, either pulmonary or general; and to a somewhat but scarcely less degree that form described by Powell under the title "Chronic Pulmonary Tuberculosis," which formed the subject of an article by myself under the rather unsatisfactory title "Chronic Parenchymatous Pulmonary Tuberculosis," These, the former at least, are not curable by any means known to us to-day and are practically invariably fatal regardless of the method of treatment employed. As long as such is the case it is absurd to speak of our having any specific against tuberculosis. It is not sufficient to compare or classify these forms of tuberculosis with the so-called "fulminant" or "pernicious" cases of other infectious diseases, such as syphilis, scarlet fever, etc. The latter have no distinct pathology or pathological anatomy distinguishing them from the great majority of cases of the same disease which run a milder course, and are amenable to their respective "specific" treatments.

COUNTY MEDICAL SOCIETIES.

Denver.—At the meeting of March 1, a paper upon **Perforating Ulcer of the Stomach, Operation, Recovery,** was read by Charles A. Powers, and discussed by Drs. Kinney, Sewall, Canby, Freeman, Gibson, Boyce and Powers. This paper will appear in full in an early number of this journal.

J. N. Hall and C. E. Walbrach reported three cases of **Adiposis Dolorosa.** Each of the cases presented the characteristic symptoms of Dercum's disease—the increase of adipose tissue, pain, general asthenia, marked nervous disturbances and change of disposition. All the patients were women; two were alcoholics. There was no discoverable involvement of the thyroid in either case. In case I, seen by Dr. Hall, the patient's age was 38. There was neurasthenia, an extremely painful tumor over the deltoid, others on the posterior surface of the thighs, and small tumors on the trunk.

Case II, occurring in the hospital service of Dr. Walbrach, was that of a woman aged 35, who had great deposits of adipose tissue on the hips, thighs, and especially the regions around and below the knees. There were great pain, marked asthenia, and causeless quarreling. The patient was confined to bed. She was given thyroid extract and potassium iodide; and improved greatly, so that in three months she was able to leave the hospital. A year later the improvement seemed to have continued, and she was working.

The third case was seen by Dr. Hall as a medico-legal case. The patient, aged 25, had received a bruise over the right hip thirteen months previously. At the site of the injury, there was a large, extremely sensitive tumor which was nodular and ecchymotic. The patient also exhibited the asthenia and nervous disturbances of the disease.

O. J. Pfeiffer reported a case of **localized degeneration and rupture of the heart muscle,** and exhibited the specimen. The patient, a man aged 58, was attacked with agonizing pain over the region of the heart, extending toward the right side, and toward the right shoulder. Under repeated doses of morphia these diminished, and the next night the patient rested fairly well. Physical examination revealed only a slight murmur, which was thought to be either of tricuspid or pericardial origin. The patient continued comfortable, but died suddenly during the following night, about 48 hours after the original attack. Post-mortem examination showed an oval area of softening, about the size of a half-dollar, in the wall of the right ventricle; and in this were two fissures, apparently caused by separation of the muscular bundles. The pericardium contained a large blod clot about the base; with serum about the apex, which, upon first opening the sac, was taken for pericardial effusion.

This case presented another extremely interesting feature. The patient had suffered nine years before with severe abdominal

symptoms. The cystic duct was found blocked by a large gall stone, with many minute stones behind it. The gall bladder had undergone cicatricial contraction, except a small rounded sac that remained at the fundus.

Dr. Sewall had known the heart muscle to be ruptured by tearing away of the papillary fibres from the wall of the ventricle.

Dr. Hall knew of two instances of geese, shot through the heart with BB shot, that continued to fly, one of them for one-fourth, the other for three-fourths of a mile, and then appeared to die instantly. The hemorrhage into the pericardium seemed to have gone on until the pressure upon the heart was so great that it could no longer act.

Dr. Moleen had seen a case of rupture of the left ventricle, in which marked syphilitic placques were found.

Dr. Burns had known of two cases of death by ulceration of the heart wall, one of them following la grippe.

It was determined to devote an early meeting to the discussion of a proper law regulating the practice of medicine.

March 15.

The meeting was devoted to a **Symposium on Tuberculosis.** W. N. Beggs read a paper entitled **What Determines the Clinical form of the Disease.** The three factors to be considered were the tubercle bacillus, the constitution of the patient, and mixed infection. The bacillus produced its effects through the toxines, which caused a local reaction and a coagulation necrosis. They also extended their influence beyond the tubercle, producing the formation of fibroid tissue about it, and a more general impairment of cellular functions. The influence of the bacillus might vary by reason of the rapidity of its multiplication, or the quantity or quality of the toxines produced.

With regard to the constitution of the individual, although the disease itself was rarely if ever inherited, the constitutional liability to it was determined by inheritance. This liability might lie anywhere between absolute susceptibility and absolute immunity, no individual reaching either of these extremes. The effects produced depended on the relation of dosage to resistance, and dosage on the virulence and the quantity of the virus.

In determining the clinical type, the portal of invasion, and the channels by which the infection was distributed within the body, played a very important part. The occurrence of mixed infection tended to merge the different clinical types into one, that of the terminal stage of the disease.

The Medicinal Therapeutics was discussed by A. Zederbaum. He believed this was the least advanced chapter in the natural history of the disease; and that Colorado physicians who see armies of these patients, waste few of their prescription blanks for the drugs which are so widely heralded as specifics. Creosote, guaiacol, and the drugs of their class, constitute an important group. Their effect in consumption is not explained either by their power as germicides, or in any other way. They seemed to be losing ground. Ichthyol and its preparations seemed to have more positive influence. The undoubted value of cod-liver oil in bone and gland tuberculosis, was also manifested in the pulmonary disease. Alcoholic preparations were valuable where there was continuous fever; just as they were in other infectious diseases. Kephir and koumyss were worthy of more general employment; especially the real koumyss made from mare's milk, which might with advantage be introduced into this Western country. While there was no specific drug treatment for consumption, the management of the cases and the treatment of complications demanded the very widest acquaintance with general medicinal therapeutics. Fever, diarrhea, nausea, insomnia, constipation, cough, night sweats, pleurisy and pain—all require careful attention.

The Advantage of High Altitude in the treatment of tuberculosis was taken up by Charles Denison. Altitude in many ways favored a radical change toward life in the open air. It secured purity of the air. Rarefaction produces dryness, which some of the critics of the altitude treatment held to be its only important factor; it also secured coolness. Besides, the mechanical effects produced on the lungs, the physiological influence, both immediate and permanent, was in the direction of increased activity of tissue changes. Altitude immunity was shown in the fact that, despite the great influx of consumptives, the mortality from this disease was lower in cities and towns of the elevated regions, than in the corresponding places near sea level. The sunshine and diathermacy of high altitudes favored immunity. Great variability of temperature was especially adverse to the group of bacteria to which the tubercle bacillus belonged. He believed that the electrical conditions of high altitudes have an important in-

fluence in stimulating tissue change. It should be emphasized that infection from without played a very small part in consumption. It was most important to develop that immunity which would guard the tissues against spread of the disease by a continuous or repeated auto-infection.

Tuberculosis in Pregnancy was the subject of a paper by T. M. Burns. He alluded to the former belief of the profession that pregnancy exerted a favorable influence on tuberculosis; and queried whether a single striking case was not liable to make such an impression as would overshadow the lessons taught by the majority of cases. He briefly reported seven cases in which pregnancy had seemed to exert different effects on the course of the disease; from complete arrest, to death three or four weeks after labor. He quoted, with approval, the rule: For tubercular daughters, no marriage; for tubercular wives, no pregnancy; for tubercular mothers, no nursing.

F. E. Waxham considered the **Laryngeal Complications.** While the statistics of Great Britain showed that these were present in one-half the cases of consumption occurring in that country, he was sure they were much less frequent in Colorado. Without undertaking to decide the question of frequency of primary tuberculosis of the larynx, he had seen but one case in which the laryngeal condition was not associated with disease of the lungs. It was liable to arise at any stage of pulmonary tuberculosis. Loss of voice might be complete and permanent, without the occurrence of pain; or there might be pain which would prevent the patient from swallowing, without any loss of voice. The diagnosis was readily made from the local appearances, the finding of tubercle bacilli in the sputum, and the pulmonary disease. Laryngeal tuberculosis was to be distinguished especially from syphilis and cancer. The former yielded promptly to specific treatment; the latter was attended with more constant pain, not dependent upon swallowing or other disturbance of the parts. The prognosis depended chiefly on that of the disease of the lungs. With regard to the treatment; he believed that surgical measures, like curetting, were sometimes necessary, but not in many cases. Applications of lactic acid were rarely, if ever, needed. When the surface was unbroken local treatment could not reach the diseased process; and for ulceration the use of formaldehyd or the milder applications was most beneficial. Pain could be largely controlled by orthoform, although opiates were sometimes required.

Aural Complications were discussed by Melville Black. There were not many cases of primary tuberculosis of the ear. But there was a great deal of tuberculosis of mild type, secondary to pulmonary disease. It was a great exception for both ears to be involved. The aural complication he believed was almost always caused by the forcing into the ear of fluid from the nose; either from some form of douche, or snuffing up fluid from the hand; or blowing the nose before the fluid had been allowed to drain away. He had seen no case in which the complication had been serious, and none in which the ear had entirely healed. There was deafness, but no pain and little discharge. The treatment was to cleanse and dry the ear, and pack twice a day with iodoform gauze, until the discharge ceased. After that the case should be examined from time to time, and the scabs or scales of dry discharge, which tended to form, carefully removed.

Fremont County Medical Society.—The regular bi-monthly meeting was held at Florence, in the office of Dr. J. W. Rambo, on the evening of March 7, 1904.

Dr. Graves reported Dr. Ward's interesting fatal case of **cerebal abscess** involving the whole temporal lobe of the cerebrum, with autopsy. This was freely discussed by the whole society.

As pertinent to this case President Little, of Canon City, made an urgent appeal to the members to improve the pathological work of the society by making autopsies whenever possible, and presenting pathological specimens so obtained under the section of "Clinical Cases."

Dr. Graves and Dr. McDougal reported the latter's fatal case of **abdominal injury** due to kick of a horse. This was also freely discussed as to immediate cause of death, no autopsy having been made.

Dr. Phelps' paper on **"Uterine Infection,"** paying particular attention to treatment, called out considerable talk on the use of the curette and douche, from Drs. T. B. Moore, Rambo, Little and Adkinson.

Dr. Rambo then read a very interesting essay on **"Surgical Shock,"** incorporating much of his personal experience in railroad work. The general discussion of this paper was free and

informal, by Drs. Williamson, Holmes, Edwards, Condit, Moore and Graves.

The Society adjourned to meet in May at Rockvale, on invitation of Dr. Williamson.

R. C. ADKINSON, Sec.

The Las Animas County Medical Society held its regular monthly meeting on the 5th, with every member present. Dr. Roberts, of Aguilar, read a paper on **"Confusional Insanity,"** which was discussed at some length by all those present.

The next meeting will be on April 1, at which officers for the ensuing year will be elected.

In point of attendance, reading of papers, reports of interesting cases, sanitation and other matters for the advancement of the medical profession and sanitary care of the city of Trinidad, the past year has been the most successful in the history of the Society.

PERRY JAFFA, Sec.

The Mesa County Medical Society was organized in July, 1903. Regular meetings are held on the first Tuesday in each month, in the Grand Junction Chamber of Commerce. The officers are: Dr. L. F. Ingersoll, President; Dr. F. R. Smith, Vice President; Dr. A. G. Taylor, Secretary; Dr. H S. Henderson, Treasurer; Dr. K. Hanson, Delegate.

After organization four meetings were held during 1903, at which times a number of clinical cases were reported and freely discussed; however, no regular program was taken up until the first of the present year.

At the regular meeting held on January 5, last, Dr. Taylor reported a case of **Acute Intestinal Obstruction** in which the symptoms and clinical aspect presented nothing out of the ordinary in such cases. In the way of treatment, attention was called to lavage of the stomach which offers more than anything else perhaps, in cases of a similar nature. Such a procedure alleviates the intense thirst and gets rid of toxines which might otherwise be absorbed.

At the same meeting Dr. Smith read a paper entitled **Empyema.** This paper represented years of experience and was most admirably prepared. The subject was covered most completely. In one case cited the patient was operated on three times before satisfactory drainage could be secured. Dr. Smith expressed the belief that extirpation of the lung should be done early in cases of equal magnitude. General discussion of this subject was participated in by all those present.

At the February meeting Dr. H. R. Bull reported a case of **Hyperchlorhydria.** The report of this case was practical and interesting. The doctor exhibited Einhorn's stomach bucket and stated that he had gotten good results from its use.

At the same meeting Dr. Warner read a paper, subject, **The Physician's Interest in the Oral Cavity.** This paper was well prepared, and good points were brought out in the discussion, especially that part relating to the treatment of fracture of the inferior maxilla by means of inter-dental splints.

At the meeting in March Dr. Ingersoll read a paper entitled **Draughts and Temperature,** in which he dealt with this little talked of subject in an interesting way. Dr. Ingersoll states that in almost all cases of typhoid fever, he finds that the general course of the disease may be greatly controlled, both in duration and severity of symptoms, by allowing the patient an abundance of fresh air and at the same time excluding all draughts.

G. A. TAYLOR, Sec.

The Otero County Society held its March meeting on the 8th inst. The papers were: Hay Fever, Dr. Timmerman, and The Woman Physician, Dr. Jessie Stubbs. Dr. Carl Myer gave a report of the successful use of **Streptolytic serum** in a case of tubercular laryngitis, tubercular fistula of the knee, in a case of malignant scarlet fever, as a prophylactic in exposures to scarlet fever, and in parotitis. Dr. Edwards exhibited a number of radiographs. E. GARD EDWARDS, Sec.

OTHER MEDICAL SOCIETIES.

Denver Clinical and Pathological Society.—At the regular monthly meeting, March 11, Dr. Levy exhibited **specimens of tonsils** and adenoids from a child of ten months. Discussed by Dr. Black.

Dr. Hall exhibited the **Riva-Rocci sphygommaemeter** and commented upon its use. Illustrative cases were shown. He stated that the instrument was more convenient and accurate than Gaertner's tonometer, and that it was possible to estimate within 5 or 10 per cent of the actual arterial tension. The instrument is a guide to the better estimation of the pulse quality.

Dr. Stover exhibited a **spinthariscope** showing the scintillations of a fragment of radium of pin-point size, the same being in vacuo.

Dr. Cooper made some remarks concerning the establishment by the State Board of Health, of **depots for the sale of antitoxin.** These depots are to be located throughout the state at certain convenient distributing points.

Dr. Waxham reported the case of a male of 66 years, with mitral systolic lesion, arteriosclerosis, general pulmonary edema, troubled with copious **nasal hemorrhages.** After much difficulty the hemorrhages were controlled by filling the anterior nares with gelatin and paraffin in turn, in conjunction with a posterior plug. Discussed by Dr. Levy.

Dr. Hill reported the case of a female of 58, with hemorrhage from the lower part of the duodenum.

Dr. Hickey reported the case of a male of 26 with supposed cardiac disease, relieved by the administration of bromides.

Dr. Grant reported the case of a female whose **menopause** was completed at the age of 25, no diseased condition being present, and the usual signs of the climacteric being shown. Discussed by Drs. Hershey, Hall, Hill, Perkins, Kenney and Hickey.

On motion of Dr. Rogers, amended by Dr. Stover, it was voted to instruct the Secretary to prepare an article embodying these several reports, and cause its publication in one of the medical journals.

Dr. Black reported two cases of **syphilitic iritis,** occurring in the second stage of the disease.

Dr. Ewing, of Nashville, Tenn., reported a case of sudden death from **pulmonary oedema,** in a woman having a fibroid tumor. Discussed by Drs. Hall, Edson, Rogers, Waxham, Beggs, Hill, Grant, Childs and Bonney.

Dr. Wilder reported a case of **strangury with hematuria** due to the presence of a round cell sarcoma in the bladder. (2) Case of a male of 56, with enlarged prostate for six years. Operation disclosed a **cacinoma of the prostate.** (3) Male of 72 catheterized for 15 years had an edematous and encapsulated prostate. Discussed by Dr. Beggs.

Sepsis. Dr. Powers exhibited the chart, and discussed the case of a male of 46 years who primarily suffered from a lacerated index finger. After infection had spread up the arm, he consulted Drs. Durbin and Graham, who found him suffering from an axillary abscess which was opened and drained. Temporary improvement was followed by the formation of a septic grandular mass, of the size of an orange in the left axilla. This was removed by Dr. Powers with temporary improvement. Twelve days later the patient had a chill and the temperature went to 104 degrees, followed by a morning remission to normal, the evening exacerbation and morning remission occurring several days in succession with no improvement. This was accompanied by all the symptoms of profuse sepsis, with emaciation, etc. Daily examinations failed to reveal any further focus of sepsis. Antistreptococcic serum was given for several days with no change of the condition. Four days subsequent to the discontinuance of the serum, salt solution one pint each six hours for six doses by hypodermoclysis was given This was followed by an immediate and permanent drop of the temperature to the normal point, with prompt recovery of the patient. Discussed by Drs. Perkins, Grant, Waxham and Bonney.

Sarcoma. Dr. Rogers reported the case of a boy of four years with a tumor over the sacrum, the mass appearing since the reception of an injury ten days previously. A week later another mass appeared over the sciatic notch. Operation disclosed a sac full of venous blood—the mass continuing into, and filling two-thirds of the pelvis. The microscope showed it to be a mixed-celled sarcoma.

F. W. KENNEY, Secretary.

Denver Physicians' and Surgeons' Club.—A regular meeting was held at the office of Dr. S. Simon on the evening of March 16, 1904, President T. M. Burns in the chair. The minutes of the previous special meeting were read and approved.

Following the transaction of business, Dr. Stevens opened the scientific program by discussion of special features appearing in a case of **intestinal keratitis.**

Dr. Hutchinson reported a case of **typhoid fever** in which occurred without perforation or hemorrhage a fall in temperature from 103 degrees to 94 degrees F. in the course of a few hours.

Dr. Greedy discussed the **conjunctival hemorrhage** with report of a case.

Dr. Simon reported a case of recurring **endocarditis** the patient presenting also a **corbovinum.**

Dr. S. T. Brown discussed **phleboliths** and

reported a case in which a number of calculi were found in the vessels of the right leg.

Dr. Oettinger reported a case of **chronic strychnia poisoning** in a child of four years, the drug having been pushed for tonic effect by the attending physician for about four months.

Dr. Lockard reported a case of **ulcer of the bronchus** and discussed this lesion.

Dr. Thorp reported a case of **measles** in a child four days old.

Dr. Lucy discussed **peritonitis**, illustrating his remarks by some phases recently observed.

The Society was entertained by Drs. Simon and Mugrage. BERNARD OETTINGER, Secretary.

Colorado Ophthalmological Society.—The March meeting was held at the office of Dr. W. C. Bane, in Denver, with 10 members and one visitor present. Cases were presented and reported by Drs. Bane, Black, Coover, Stevens and Marbourg. Dr. Jackson reported some observations regarding the **physiology of accommodation**; and discussed the theories of Helmholtz and Tscherning. He believed the former best explained all the observed facts.

DEATHS.

James Brownlee Sanford, M. D., died of appendicitis, March 16, after an illness of about 10 days. He was a native of New York; the son of Henry R. Sanford, for years connected with the Department of Public Instruction of the State of New York. In Dr. Sanford's earlier years he was engaged in teaching; and traveled widely, both in America and in the Eastern Hemisphere. He graduated at the University of Maryland, Baltimore, in 1900. About four years ago he removed to Colorado on account of impaired health, and entered upon medical practice at Castle Rock. In 1902 he was elected a member of the Fourteenth General Assembly of Colorado; and became Speaker of the House of Representatives. At the close of the sessioin of the legislature he removed to Denver, and again entered upon practice. At the meeting of the Legislative Council of the American Medical Association in Washington, in February last, he was chosen Secretary. While a member of the Legislature he took an active part in the passage of the Medical Bill, advocated by the profession, and which was vetoed by Governor Peabody. He was a member of the Medical Society of the City and County of Denver, and of the Colorado State Medical Society. Although since his coming to Denver he became interested in other matters, he has always taken an active part in work for the improvement of his profession.

NEWS ITEMS.

Colorado Medical Legislative League.—The vacancy created by the death of Dr. Sanford has been filled by the election of Dr. C. H. Catherwood, of 426 Temple Court Building, Denver, as Secretary and Treasurer of the League.

Punished for Doing Its Duty.—For its efforts to enforce the medical law of Colorado against an osteopath, whom the newspapers refer to as "Dr." John T. Bass, that gentleman secured a verdict of $700 damages against the State Board of Medical Examiners. An appeal has been taken to the supreme court, and it is hoped that body will give an opinion indicating what constitutes the practice of medicine in the state of Colorado.

Col. E. B. Moseley, U. S. A., for the last three years Chief Surgeon of the Department of Colorado, has gone east, expecting to spend some time in Europe.

Dr. W. A. Campbell, of Colorado Springs, is making a long contemplated visit to the larger medical centers of Great Britain and Continental Europe.

BOOKS.

Progressive Medicine.—A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences, edited by H. A. Hare, assisted by H. R. N. Landis. Vol VI, No. 1. Lea Brothers and Company, Philadelphia and New York. $6.00 per annum.

This number comes in slightly altered form. Instead of being in a stiff binding, it is sent out in a substantial paper back, such as is so commonly used for the scientific publications of the Germans. While there seems to be a slight reduction in the number of pages, this is insignificant as compared with the great reduction in its price. In the character of the articles and the thoroughness with which they show the advances made during the past year in the departments of medicine and surgery with which they deal, there is certainly no falling below the high standard of preceding years.

In this volume are considered The Surgery of the Head, Neck and Thorax, by Dr. Charles H. Frazier; Infectious Diseases, Including Acute Rheumatism, Croupous Pneumonia and Influenza, by Dr. R. B. Preble; The Diseases of Children, by Dr. F. M. Crandall; Laryngology and Rhinology, by C. P. Grayson; Otology, by Dr. R. L. Randolph.

These reviews are written to help the general practitioner; or if we regard the whole profession as becoming specialized, they give the view of medical science in general, which the specialist must have to avoid the narrowing influence of continually thinking along a single line. It is difficult to see how any practitioner, who does not wish to begin falling behind the times the day that he graduates, can get along without something of this kind. Medical journals fill a most important function, but the amount of reading it is possible to do in them will give a very fragmentary and incomplete impression of what is really being done by medical workers all over the world. Here we have the whole field reviewed; and the best it furnishes arranged and systematized as it can be only in this kind of a publication..

Fischer—Infant Feeding in Its Relation to Health and Disease—By Louis Fischer, M. D., of New York City. Third Edition. Containing 54 illustrations, with 24 charts and tables, 357 pages. Price $1.50 net, F. A. Davis Company, Philadelphia, Pa.

This edition has been largely revised and partly rewritten, and less than two years have elapsed since the appearance of the second edition. New chapters of practical value have been added upon "Milk Idiosyncrasies In Children;" "Buttermilk Feeding;" "Scurvy;" and "Feeding Children with Cleft Palate." Its wealth of dietaries, formulas and minute directions, doubtless, has much to do with the popularity it has achieved.

Commoner Diseases of the Eye—By Casey A. Wood, M. D., D. C. L. and Thomas A. Woodruff, M. D., L. R. C. P. 250 Illustrations, 7 colored plates, 500 pages. $1.75 net.

This is the latest book on the eye, designed especially for the student and general practitioner. Its many excellent illustrations are nowhere used to better advantage than in the important first chapter, from which we may get clear and concise instructions in the first essential of ophthalmology, the methodical examination of the eye.

Points in the diagnosis and treatment of the more usual diseases and injuries of the eye and its appendages, together with the explanation of the principles of refraction as applied to the correction of the various forms of ametropia by glasses, should give the student a fair knowledge of these subjects, and the general physician some help in practice. The chapter: "How to Preserve the Eyesight—The Fundamentals of Ocular Hygeine." is full of valuable information and helpful suggestion.

The recommendation of the acquirement, by all physicians, of sufficient skill in the use of the ophthalmoscope to recognize the gross changes in the internal structures of the eye, is worthy of adoption. The bearing of systemic diseases on the health of the eyes and the importance of the eye as an index to the general diseases, are clearly and forcibly pointed out.

Altogether, this book fulfils its author's purpose to "consider ophthalmology from the standpoint of the physician in general practice;" and as such it should be read and its lessons practiced till both knowledge and skill are attained thereby. GEORGE F. LIBBY,

Immune Sera, Hemolysins, Cytotoxins and Precipitins—By Prof. A. Wassermann, M. D., University of Berlin. Authorized translation by Charles Bolduan, M. D. New York, John Wiley and Sons, 1904.

Serum diagnosis and the serum treatment of disease are in their infancy. Slight acquaintance with the facts that have been established in the laboratory suggests boundless possibilities when they come to their practical application.

The Widal test for typhoid fever, and the antitoxins for diphtheria and tetanus are illustrations. New discoveries may soon give to other specific serums a corresponding practical value.

The progressive physician must know something of this great department of cell physiology and pathology. There is no better introduction to it than this little book of 75 pages. To one at all interested in the philosophy of teresting; and the difficulties of mastering a disease and cure, it will prove intensely innew vocabulary and seizing the clues to a new science are here reduced to a minimum. Something must be said of the poor taste of using the Latin plural sera, for the sound English serums. It reminds one unpleasantly of the man who, after a few days in London, appeared hopelessly mixed mith his h's. To retain the foreign plural of a word that has been fully adopted in our language, is a very common piece of pedantry, but none the less inexcusable.

MEDICAL MEETINGS FOR 1904.

SOCIETY.	PLACE.	TIME.
American Medical Association. Secretary, Geo. H. Simmons, 103 Dearborn Ave., Chicago.	Atlantic City	June 7-10, 1904.
Arizona Medical Association. Secretary, John W. Foss, Phoenix.	Tucson	April 27-28, 1904.
Colorado State Medical Society. Secretary, J. M. Blaine, Steele Block, Denver.	Denver	October 4-6, 1904.
Idaho State Medical Society. Secretary, Ed. E. Maxcy, Boise, Idaho.	Lewiston	October 6-7, 1904.
Kansas Medical Society. Secretary, C. S. Huffman, Columbus, Kansas.	Topeka	May 5-7, 1904.
Montana State Medical Association. Secretary, B. C. Brooke, Sixth and Main Sts., Helena, Montana.	Butte	May 18, 1904.
Nebraska State Medical Society. Secretary, A. D. Wilkinson, Lincoln.	Omaha	May 3-5, 1904,
New Mexico Medical Society. Secretary, J. F. McConnell, Las Cruces.	Albuquerque	May, 1904.
Oklahoma Territory Medical Society. Secretary, E. O. Barker, Guthrie.	Oklahoma City	May 11, 1904.
Utah State Medical Society. Secretary, W. S. Ellerbeck, Salt Lake City.	Ogden	May 10-11, 1904.
Wyoming State Medical Society. Secretary, H. S. Finney, Rawlins.	Rawlins	September 13, 1904.
American Academy of Ophthalmology and Oto-Laryngology. Secretary, D. T. Vail, 4 W. Seventh St., Cincinnati, Ohio.	Denver	Augusf 24-26, 1904.
Rocky Mountain Interstate Medical Society. Secretary, Geo. A. Moleen, 316 Mack Block, Denver.	Denver	September 6-7, 1904.